

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.98
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump
Pump designation : PES6P110A32ORS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1370
Governor no. : 0 421 801 828

Cust. part No. : 1305236/2

Customer-spec. information

Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity	
cm ³ /1000 strokes	: 149.5
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

Rated speed rpm	: 325
Rack travel in mm	: 4.40
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 26.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1292
guide sleeve	
travel mm	: 6.37
Tolerance mm	: ± 0.15
Rated speed rpm	: 325
guide sleeve	
travel mm	: 1.99
Tolerance mm	: ± 0.20
Rated speed rpm	: 1000
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 426

guide sleeve	
travel mm	: 3.48
Tolerance mm	: ± 0.10
Rated speed rpm	: 590
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 1460
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: 109
control lever	
position degree	: 109
Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm ³ /1000 strokes	: 149.5
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Speed	
Tolerance	
cm ³ /1000 strokes	: 8.0
Check tolerance	
cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever	
position degree	: 97.0
tolerance degree	: ± 4.0
RATED SPEED	
rack travel mm	: 11.25
Rated speed rpm	: 1290
Tolerance 1/min	: ± 5
Check	
speed 1/min	: ± 10

rack travel mm : 4.00
Rated speed rpm : 1370
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600

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Pressure hPa : -
rack travel mm : 7.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Pressure hPa : 220
rack travel mm : 7.85
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.98
Test oil : ISO 4113

Combination No. : 0 402 046 882

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1250PA1385
Governor no. : 0 421 814 209

Cust. part No. : 1351707/1

Customer-spec. information

Customer : DAF
Motor : NS177M-CBP
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.80
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
 : - 4

Phasing : 0- 60- 120- 180
 : - 240- 300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.70

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1303
guide sleeve
travel mm : 10.33
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.25
Tolerance mm : \pm 0.20

Rated speed rpm : 865
guide sleeve
travel mm : 5.43
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.02
Tolerance mm : \pm 0.25

Rated speed rpm : 1510
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 11.80
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 154.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1290
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1375
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 210
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Pressure hPa : 410
rack travel mm : 11.40
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.07.98
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9882855

Customer-spec. information
Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 137.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance L/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

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Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 12.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.35

Tolerance mm : \pm 0.10

Del. quantity

cm3/1000 strokes : 27.0

Tolerance

cm3/1000 strokes : \pm 3.0

Check tolerance

cm3/1000S. : \pm 5.5

Speed

Tolerance

cm3/1000 strokes : 4.5

Check tolerance

cm3/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : \pm 0.20

governor spring

pre-tension

click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980

Aneroid pressure

hPa : 1220

Del. quantity

cm3/1000 strokes : 173.0

Tolerance

cm3/1000 strokes : \pm 1.0

Check tolerance

cm3/1000S. : \pm 3.5

Speed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 105.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 4.00

Rated speed rpm : 1080

Tolerance 1/min : \pm 15

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1028

rack travel mm : 11.10

Rated speed rpm : 1083

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1029

rack travel mm : 11.10

Rated speed rpm : 1084

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1030

rack travel mm : 11.10

Rated speed rpm : 1085

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1031

rack travel mm : 11.10

Rated speed rpm : 1086

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1032

rack travel mm : 11.10

Rated speed rpm : 1087

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1033

rack travel mm : 11.10
Rated speed rpm : 1088
Tolerance 1/min : \pm 4
rack travel mm : 4.00

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 3.85
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.35
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 495
Tolerance 1/min : \pm 50

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 12.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1220
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.90
Tolerance mm : \pm 0.10

A09

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 730
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Pressure hPa : 670
rack travel mm : 11.30
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1220
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 193.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1220
Rated speed rpm : 700
rack travel mm : 12.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 186.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0

Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 4.35
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.07.98
Test oil : ISO 4113

Combination No. : 0 402 086 704

Injection pump
Pump designation : PES6P100B321RS3388
EP type number : 0 412 006 714

Governor
Governor design. : RSV400...1125POA699
Governor no. : 0 421 833 625

Cust. part No. : 51.11103-7607

Customer-spec. information

Customer : MAN
Motor : D0826 LE531
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2 0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 14.10
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 174.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 400

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925

Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 174.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

RATED SPEED

rack travel mm : 12.60
Rated speed rpm : 1175
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1270
Tolerance 1/min : \pm 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 4.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 14.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1125
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.10

Rated speed rpm : 1025

rack travel mm : 13.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : \pm 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.45
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 150
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Pressure hPa : 800
rack travel mm : 13.05
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 187.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.45
Tolerance mm : \pm 0.45
Del. quantity
cm³/1000 strokes : 112.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.98
Test oil : ISO 4113

Combination No. : 0 402 646 626

Injection pump
Pump designation : PE6P120A32ORS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1076K
Governor no. : 0 421 815 357

Cust. part No. : 1280160/8

Customer-spec. information
Customer : DAF
Motor : WS 268 M
Power kW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 250.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.80

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1045
guide sleeve
travel mm : 9.82
Tolerance mm : + 0.20

Rated speed rpm : 275
guide sleeve
travel mm : 2.14
Tolerance mm : + 0.15

Rated speed rpm : 689
guide sleeve
travel mm : 6.43
Tolerance mm : + 0.25

Rated speed rpm : 284
guide sleeve
travel mm : 2.27
Tolerance mm : + 0.25

Rated speed rpm : 334
guide sleeve
travel mm : 3.17
Tolerance mm : + 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 3.79
Tolerance mm : + 0.25

Rated speed rpm : 1310
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1130

Rack travel in mm : 12.60
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.55
Rated speed rpm : 1042
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 275
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Rated speed rpm : 980
rack travel mm : 13.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 980

Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 720
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Pressure hPa : 360
rack travel mm : 9.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 263.0
Toierance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 12.10
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.98

Test oil : ISO 4113

Combination No. : 0 402 646 671

Injection pump

Pump designation : PE6P120A320RS7421

EP type number : 0 412 626 956

Governor

Governer design. : RQV275...1150PA1297K

Governer no. : 0 421 815 524

Cust. part No. : 1316184/5

Customer-spec. information

Customer : DAF

Motor : PF 212 M

Power KW : 212.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 160

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 15.0

Tolerance bar : ± 1.0

Prestroke mm : 4.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.35
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 10.12
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 813
guide sleeve
travel mm : 6.81
Tolerance mm : \pm 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.85
Tolerance mm : \pm 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1329

Rack travel in mm : 11.10
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 231.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.10
Rated speed rpm : 1195
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : $>$ 7.00

Testing:

Rated speed rpm : 275
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1130
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 11.50
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 10.85
Tolerance mm : \pm 0.10

Rated speed rpm : 1150
rack travel mm : 12.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 12.35
Tolerance mm : \pm 0.10

Rated speed rpm : 875
Pressure hPa : -
rack travel mm : 8.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 420
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Pressure hPa : 150
rack travel mm : 9.20
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 207.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 12.15
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 138.0

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.07.98
Test oil : ISO 4113

Combination No. : 0 402 676 804

Injection pump
Pump designation : PE6P120A320RS7142
EP type number : 0 412 626 820

Governor
Governor design. : RSUV325...1150POA358
Governor no. : 0 421 829 105

Cust. part No. :

Customer-spec. information

Customer : MWM
Motor : D-TBD 234 V6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-6A- 3- 2A- 5

Phasing : 0-90-120-210-240
-330
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.60

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 35.0

Tolerance
cm3/1000 strokes : \pm 5.0

Check tolerance
cm3/1000S. : \pm 8.0

Speed
Tolerance

cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 900
Del. quantity
cm3/1000 strokes : 261.0
Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : \pm 4.0

control lever
position degree : 115.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.90

Rated speed rpm : 1195

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : \pm 15

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1440

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

control lever
position degree : 23.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 6.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00

Rated speed rpm : 470
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 14.95
Tolerance mm : + 0.05

Rated speed rpm : 1150
rack travel mm : 14.95
Tolerance mm : + 0.10

Rated speed rpm : 1100
rack travel mm : 5.00
Tolerance mm : + 0.10

Rated speed rpm : 1100
rack travel mm : 7.00
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.50
Tolerance mm : + 0.10

MEASUREMENT

Pressure hPa : 725
rack travel mm : 14.75
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 260.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
rack travel mm : 5.00
Tolerance mm : + 0.10

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 strokes : + 25.0
Check tolerance
cm3/1000S. : + 25.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 130.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 220.0
Tolerance
cm3/1000 strokes : + 20.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 325
Rack travel in mm : 6.60
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 35.0

Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.07.98
Test oil : ISO 4113
Combination No. : 0 402 746 640
Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925
Governor
Governor design. : RQV300...1050PA1191
Governor no. : 0 421 814 114

Cust. part No. : CCEP 5147C 66-223

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.20.45 C4
Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.95
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.70
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Del. quantity cm ³ /1000 strokes	:	197.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	± 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	± 4.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	300
<hr/>		
Rack travel in mm	:	-7.20
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	31.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 5.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1140
guide sleeve travel mm	:	8.49
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	300
guide sleeve travel mm	:	1.33
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	754
guide sleeve travel mm	:	6.10
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	365

guide sleeve travel mm	:	2.40
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	415
guide sleeve travel mm	:	3.28
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	460
guide sleeve travel mm	:	3.86
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	1460
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1230
<hr/>		
Rack travel in mm	:	11.70
Tolerance mm	:	± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	197.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	302.0
tolerance degree	:	± 4.0
<hr/>		
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1150
Tolerance 1/min	:	± 5

rack travel mm : -8.70
Rated speed rpm : 1295
Tolerance 1/min : \pm 15

rack travel mm : -12.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 266.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm max. : $<$ -4.80

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : -0.80
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : -0.35
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 199.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.07.98
Test oil : ISO 4113
Combination No. : 0 402 746 655
Injection pump
Pump designation : PES6P120A320RS7343
EP type number : 0 412 726 915
Governor
Governor design. : RQV300...1000PA1160
: -1K
Governor no. : 0 421 815 559
Cust. part No. : 5168 66-250

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 062356 B41
Power KW : 288.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holde
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 089
Outside diameter : 8.0

B02

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.40
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 13.00
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 356.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1113
guide sleeve
travel mm : 8.82
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.29

B03

Tolerance mm : \pm 0.20

Rated speed rpm : 827
guide sleeve
travel mm : 5.96
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.66
Tolerance mm : \pm 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1275

Rack travel in mm : 12.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 356.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

rack travel mm : -9.00

Rated speed rpm : 1225
Tolerance 1/min : \pm 15

rack travel mm : -12.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 252.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $>$ -6.90

Testing:

Rated speed rpm : 300
rack travel mm : -7.90
Tolerance mm : \pm 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.40
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.55
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -4.10

Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320
rack travel mm : -3.00
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -1.90
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 390.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 0.10
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 241.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25

Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.96
Test oil : ISO 4113

Combination No. : 0 402 036 761

Injection pump
Pump designation : PES6P110A120RS3353
EP type number : 0 412 016 752

Governor
Governor design. : RQV450...1100PA1233K
Governor no. : 0 421 815 474

Cust. part No. : 3926886

Customer-spec. information
Customer : CDC
Motor : 6CTA
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 13.00
Difference ° CS : 1.20

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500

Rack travel in mm : 5.80
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1214
guide sleeve

travel mm : 8.09
Tolerance mm : \pm 0.15

Rated speed rpm : 500
guide sleeve

travel mm : 1.82
Tolerance mm : \pm 0.25

Rated speed rpm : 890

guide sleeve
travel mm : 4.75
Tolerance mm : \pm 0.25

Rated speed rpm : 1570
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : \pm 6.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 1155

Tolerance 1/min : \pm 15

rack travel mm : 6.80
Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 1325

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 6.0

Control lever difference
Grad : 36.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 500
rack travel mm : 5.80
Tolerance mm : \pm 0.20

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.15
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.70
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
rack travel mm : 12.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 10.55
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 890
rack travel mm : 12.60
Tolerance mm : \pm 0.30

Pressure hPa : 720
rack travel mm : 11.15
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 380

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 390

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 189.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 1100
rack travel mm : 12.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 178.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 161.0

Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.80
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.96
Test oil : ISO 4113
Combination No. : 0 402 746 641
Injection pump
Pump designation : PES6P120A320LS7337
EP type number : 0 412 726 910
Governor
Governor design. : RGV350...1100PA1200K
Governor no. : 0 421 815 453

Cust. part No. : 1823959C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-531
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 213.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 6.90
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 30.5

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 5.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 213.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 6.0

RATED SPEED

rack travel mm : 12.90

Rated speed rpm : 1155

Tolerance 1/min : + 15

rack travel mm : 4.00

Rated speed rpm : 1290

Tolerance 1/min : + 5

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1350

LOW IDLE

control lever

position degree : 78.0

tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 325

rack travel mm : 6.90

Tolerance mm : + 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 14.45

Tolerance mm : + 0.05

Rated speed rpm : 650

rack travel mm : 12.80

Tolerance mm : + 0.10

Rated speed rpm : 1100

rack travel mm : 14.00

Tolerance mm : + 0.10

Rated speed rpm : 800

rack travel mm : 13.50

Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 11.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 755
rack travel mm : 13.40
Tolerance mm : \pm 0.20

Pressure hPa : 280
rack travel mm : 11.50
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 280

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

rack travel mm : 14.00
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 197.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 129.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 30.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.09.95
Test oil : ISO 4113

Combination No. : 0 403 466 162

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV500...1100MW2A380
Governor no. : 0 420 085 263

Cust. part No. : 3930454

Customer-spec. information

Customer : CDC
Motor : 6 CTA
Power KW : 160.3

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.95
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 140.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 140.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.90

Rated speed rpm : 1190

Tolerance 1/min : \pm 5

rack travel mm : 5.80

Rated speed rpm : 1235

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 80.5
tolerance degree : \pm 4.0

Control lever difference

Grad : 13.5

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 550

rack travel mm : 4.70

Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.20
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.95
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 755
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Pressure hPa : 625
rack travel mm : 11.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.95
Test oil : ISO 4113

Combination No. : 0 403 466 163

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV450...1000MW2A381
Governor no. : 0 420 085 264

Cust. part No. : 3929166

Customer-spec. information

Customer : CDC
Motor : 6 CT
Power KW : 153.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 148.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 148.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.20

Rated speed rpm : 1045
Tolerance 1/min : \pm 5

rack travel mm : 5.40

Rated speed rpm : 1120
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 82.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 12.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.35
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 850
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Pressure hPa : 590
rack travel mm : 10.90
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 155.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 5.0

Speed

Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 9.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 117.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm3/1000 strokes : 177.0
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 16.5
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Speed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.10.96
Test oil : ISO 4113

Combination No. : 0 403 466 176

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1100MW2A402
Governor no. : 0 420 085 292

Cust. part No. : 3931934

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.25
Rated speed rpm : 1170

Tolerance 1/min : \pm 5

rack travel mm : 5.80

Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1350

rack travel mm : 5.80

Rated speed rpm : 1230

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 89.0
tolerance degree : \pm 4.0

Control lever difference

Grad : 19.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 10.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

rack travel mm : 10.60
Tolerance mm : \pm 0.20

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00

Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info. for test and adjustment instructions.
See microcard(s) W40f'...

Edition : 1.10.96
Test oil : ISO 4113
Combination No. : 9 400 030 721
Injection pump
Pump designation : PES6A95D320/3RS2895
EP type number : 9 410 037 238
Governor
Governor design. : RSV475...1250AOC839R
Governor no. :

Cust. part No. : 3929601

Customer-spec. information
Customer : CDC
Motor : 6BTA
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.70
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 107.5
<hr/>	
Tolerance cm3/1000 strokes	: \pm 1.0
<hr/>	
Check tolerance cm3/1000S.	: \pm 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance cm3/1000S.	: 6.0
<hr/>	

Rated speed rpm	: 550
Rack travel in mm	: 5.50
Tolerance mm	: \pm 0.10
Del. quantity cm3/1000 strokes	: 17.5
Tolerance cm3/1000 strokes	: \pm 2.0
Check tolerance cm3/1000S.	: \pm 4.5
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: \pm 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
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Aneroid pressure hPa	: 900
Del. quantity cm3/1000 strokes	: 107.5
Tolerance cm3/1000 strokes	: \pm 1.0
Check tolerance cm3/1000S.	: \pm 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

CONTROL LEVER

control lever	
position degree	: 108.0
tolerance degree	: \pm 4.0

RATED SPEED	
rack travel mm	: 11.80
Rated speed rpm	: 1325
Tolerance 1/min	: \pm 5

rack travel mm	: 5.80
Rated speed rpm	: 1385
Tolerance 1/min	: \pm 5

rack travel mm	: 0.85
Tolerance mm	: \pm 0.55
Rated speed rpm	: 1450

rack travel mm	: 5.80
Rated speed rpm	: 1385
Tolerance 1/min	: \pm 15

LOW IDLE

control lever	
position degree	: 78.0
tolerance degree	: \pm 4.0

Control lever difference	
Grad	: 30.0
tolerance degree	: \pm 4.0

Setting point w/out bumper spring

Rated speed rpm	: 550
rack travel mm	: 5.00
Tolerance mm	: \pm 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.70
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.70
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 480
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 11.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 72.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.96

Test oil : ISO 4113

Combination No. : 9 400 030 730

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governor design. : RSV475...1100A0C844R

Governor no. : 9 420 034 710

Cust. part No. : 3928599

Customer-spec. information

Customer : CDC

Motor : 6BTA

Power KW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 8.50

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55

Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 96.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 22.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 900

Del. quantity
cm3/1000 strokes : 96.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1155
Tolerance 1/min : \pm 5

rack travel mm : 6.00
Rated speed rpm : 1225
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

rack travel mm : 6.00
Rated speed rpm : 1225
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 21.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 11.90
Tolerance mm : \pm 0.20

Pressure hPa : 360
rack travel mm : 10.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

rack travel mm : 12.60
Tolerance mm : \pm 0.20

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.10.96
Test oil : ISO 4113

Combination No. : 9 400 030 736

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. :
Governor no. : 9 420 034 715

Cust. part No. : 3929769

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 88.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 9.55
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 80.0
<hr/>	
Tolerance cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance cm3/1000S.	: + 3.0
<hr/>	
Speed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance cm3/1000S.	: 6.0
<hr/>	

Rated speed rpm	: 425
<hr/>	
Rack travel in mm	: 5.10
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 18.5
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000S.	: + 4.5
Speed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
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Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 80.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 3.0
Speed	
<hr/>	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 114.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 8.50
Rated speed rpm	: 1280
Tolerance 1/min	: + 5

rack travel mm	: 5.60
Rated speed rpm	: 1335
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1465

rack travel mm	: 5.60
Rated speed rpm	: 1335
Tolerance 1/min	: + 15

LOW IDLE

control lever position degree	: 88.0
tolerance degree	: + 4.0

Control Lever difference

Grad	: 26.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 4.60
Tolerance mm	: + 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 9.55
Tolerance mm : \pm 0.05

Rated speed rpm : 800

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.10.96
Test oil : ISO 4113

Combination No. : F 002 A0Z 004

Injection pump
Pump designation : PES6A100D320/3RS3513
EP type number : F 002 A10 002

Governor
Governor design. : RSV450...900A4C868R
Governor no. : F 002 A20 205

Cust. part No. : 3931253

Customer-spec. information
Customer : CDC
Motor : 6CT 8.3
Power KW : 154.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

CO4

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 8.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 157.0

<hr/>	
Tolerance	
cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 6.5
<hr/>	
Rated speed rpm	: 450
Rack travel in mm	: 5.50
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 22.5
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 157.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 103.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 960

Tolerance 1/min : + 5

rack travel mm : 4.50

Rated speed rpm : 995

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1050

rack travel mm : 4.50

Rated speed rpm : 995

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 80.0

tolerance degree : + 4.0

Control lever difference
Grad : 23.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.00

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450

rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.15
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 140.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.01.98
Test oil : ISO 4113

Combination No. : 0 400 864 112

Injection pump
Pump designation : PES4A95D410/3RS2934
EP type number : 0 410 894 983

Governor
Governor design. : RSV325...1250A5C858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 2525 KY

Customer-spec. information
Customer : KHD
Motor : F4L913 COM1
Power KW : 59.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 17.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 9.80
Tolerance mm : ± 0.05

Rack travel in mm : 9.00
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.00

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 8.80
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1345
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1370
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 9.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 9.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.50
Tolerance mm : \pm 0.75

LOW IDLE

Rack travel in mm : 9.00
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.07.98
Test oil : ISO 4113
Combination No. : 0 400 866 143AA
Injection pump
Pump designation : PES6A95D12ORS2773
EP type number : 0 410
Governor
Governor design. : RSV350...1250A0C2237
: R
Governor no. : 0 420
Cust. part No. : 32719459

Customer-spec. information
Customer : CUMMINS
Motor : 6BT-145PS/2600

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 11.50
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300
Rack travel in mm : 8.10
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 76.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.5
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 6.5

Rated speed rpm : 350

Rack travel in mm	: 6.00
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 13.0
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: FREE
Rated speed rpm	: 800

Rack travel in mm	: 0.50
Tolerance mm	: + 0.20

governor spring	
pre-tension	
click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 76.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.5
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 99.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 7.10
Rated speed rpm	: 1345
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1415
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1570

rack travel mm	: 4.00
Rated speed rpm	: 1420
Tolerance 1/min	: + 15

LOW IDLE

control lever	
position degree	: 80.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 5.50
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 350
rack travel mm	: 6.00
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 555
Tolerance 1/min	: + 30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 8.10
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 8.55
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 7.5

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.07.98
Test oil : ISO 4113
Combination No. : 0 400 866 145BA
Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410
Governor
Governor design. : RSV400...1100AOC2190
: -35R
Governor no. : 0 420
Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 C
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 101.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 350

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 101.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 945
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1470

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 4.50
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.05
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.10
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 99.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.07.98
Test oil : ISO 4113
Combination No. : 0 400 866 188AA
Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 0 41
Governor
Governor design. : RSV425...750A4C2213
: -5R
Governor no. : 0 42
Cust. part No. : 3921160

Customer-spec. information
Customer : CDC
Motor : 6 CT/207Ps/1800

TEST BENCH REQUIREMENTS

Inlet line : 2.0
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
°NW after s.o.d. : 10.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 830
Rack travel in mm : 13.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 139.0

Tolerance	
cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 3.5
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 6.5
<hr/>	

Rated speed rpm : 425

Rack travel in mm	: 5.20
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 11.5
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: FREE
Rated speed rpm	: 800

Rack travel in mm	: 0.50
Tolerance mm	: + 0.20

governor spring	
pre-tension	
click setting x	: 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 830
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 139.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.5
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 102.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 12.40
Rated speed rpm	: 930
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 970
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1100

rack travel mm	: 4.00
Rated speed rpm	: 975
Tolerance 1/min	: + 15

LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 4.70
Tolerance mm	: + 0.10

Testing:

Rated speed rpm	: 425
rack travel mm	: 5.20
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 460
Tolerance 1/min	: + 30

TORQUE CONTROL

Rated speed rpm : 830
rack travel mm : 13.45
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 425

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.07.98
Test oil : ISO 4113
Combination No. : 0 400 866 197AB
Injection pump
Pump designation : PES6A100D320/3RS2691
: -4
EP type number : 9 41
Governor
Governor design. : RSV450...1100A0C2238
: -3R
Governor no. : 0 42
Cust. part No. : 3915996

Customer-spec. information

Customer : CDC
Motor : 6 CT/202Ps/2200

TEST BENCH REQUIREMENTS

Inlet line : 2.
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
°NW after s.o.d. : 11.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 119.5

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.5

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 450

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 18.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spreed
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900
Del. quantity
cm3/1000 strokes : 119.5

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.5

Spreed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 46.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1355

rack travel mm : 4.00
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 26.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : \pm 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.45
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 560
rack travel mm : 12.80
Tolerance mm : \pm 0.20

Pressure hPa : 385
rack travel mm : 11.45
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

Note remarks

Edition : 03.08.98
Test oil : ISO 4113

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 030

Governor
Governor design. : RSV400...1100A0C2190
: -84R
Governor no. : 0 420 233 323

Cust. part No. : 3921129

Customer : CUMMINS
Motor : 6CT830
Power KW : 134.2

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure : 208.5
Tolerance bar : \pm 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 17.0
Tolerance bar : \pm 1.0

Prestroke mm	:	2.85
Tolerance mm	:	+ 0.05
Check		
tolerance mm	:	+ 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

```
Tolerance      : +- 0.50
Check
tolerance °NW  : +- 0.75
```

Start of delivery blocking

```

*NW after s.o.d. : 11.00
Tolerance : +- 0.50
Check
tolerance *NW : +- 0.75

```

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 119.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

Rated speed rpm	: 470
Rack travel in mm	: 5.90
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 17.5
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
Speed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 119.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 103.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.40
Rated speed rpm	: 1150
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1210
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1350

rack travel mm	: 4.00
Rated speed rpm	: 1220
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 85.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 18.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 470
rack travel mm	: 5.40
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 470
rack travel mm : 5.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 470
Rack travel in mm : 5.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.5

Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance

cm³/1000S. : \pm 4.5

Speed

Tolerance

cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.08.98
Test oil :

Combination No. : 9 400 030 669FS

Injection pump
Pump designation : PES6A100D320/3RS3503
EP type number : 9 410

Governor
Governor design. : RQV400...1250AB1301R
Governor no. : 9 420

Cust. part No. : TATA-CUMMINS

Customer-spec. information
Customer : CUMMINS
Motor : 6BTAA-160
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2;

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 97.7

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 400

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347
guide sleeve
travel mm : 8.48
Tolerance mm : \pm 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.71
Tolerance mm : \pm 0.20

Rated speed rpm : 880
guide sleeve
travel mm : 4.97
Tolerance mm : \pm 0.25

Rated speed rpm : 499

guide sleeve
travel mm : 2.75
Tolerance mm : \pm 0.25

Rated speed rpm : 549
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 3.37
Tolerance mm : \pm 0.25

Rated speed rpm : 1620
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 16.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 600

Del. quantity
cm³/1000 strokes : 97.7

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.75
Rated speed rpm : 1300
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1425

Tolerance 1/min : \pm 15
 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1485

LOW IDLE

control lever
 position degree : 15.0
 tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
 CRT mm min. : $>$ 9.00

Testing:

Rated speed rpm : 400
 rack travel mm : 6.00
 Tolerance mm : \pm 0.10

rack travel mm : 2.00
 Rated speed rpm : 625
 Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 11.75
 Tolerance mm : \pm 0.05

Rated speed rpm : 750
 rack travel mm : 11.75
 Tolerance mm : \pm 0.10

Rated speed rpm : 1250
 rack travel mm : 11.75
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
 Pressure hPa : 600
 rack travel mm : 11.75
 Tolerance mm : \pm 0.10

Rated speed rpm : 550
 Pressure hPa : -

rack travel mm : 10.50
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 400
 rack travel mm : 11.20
 Tolerance mm : \pm 0.20

Pressure hPa : 340
 rack travel mm : 10.80
 Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 120
 Rated speed rpm : $<$ 300

Check
 speed 1/min : $>$ 100
 Check
 speed 1/min : $<$ 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 600
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 96.2
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 3.5
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 10.0

Aneroid pressure
 hPa : 600
 Rated speed rpm : 1250
 rack travel mm : 11.75
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 99.4
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 3.5
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 10.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 64.3
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 10.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.00
Tolerance mm : \pm 0.75
Del. quantity
cm3/1000 strokes : 109.0
Tolerance
cm3/1000 strokes : \pm 8.0
Check tolerance
cm3/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 4.5
Spreed
Tolerance
cm3/1000 strokes : 4.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.08.98
Test oil : ISO 4113

Combination No. : 9 400 030 719

Injection pump
Pump designation : PES3A90D410RS2894
EP type number : 9 410 037 239

Governor
Governor design. : RSV300...1100A4C903L
Governor no. : F 002 A20 004

Cust. part No. : ESCORTS

Customer-spec. information
Motor : E3-179
Power KW : 26.1

TEST BENCH REQUIREMENTS

Inlet line : 2.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 012

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spread

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 300

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Spread
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.60
Rated speed rpm : 1225
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 10

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.60
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.60
Tolerance mm : \pm 0.10

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 2.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.75
Tolerance mm : \pm 0.25
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.09.96
Test oil : ISO 4113

Combination No. : 0 402 066 703

Injection pump
Pump designation : PES6P110A120RS3357
EP type number : 0 412 016 754

Governor
Governor design. : RSV550...1100P5A612
Governor no. : 0 421 833 499

Cust. part No. : 3927334

Customer-spec. information
Customer : CDC
Motor : 6CTA ELITE
Power KW : 208.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.25
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 201.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 6.40

Tolerance mm : + 0.20

Del. quantity
cm3/1000 strokes : 29.5

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Spreed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1800

Del. quantity
cm3/1000 strokes : 201.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.20

Rated speed rpm : 1165

Tolerance 1/min : + 5

rack travel mm : 6.40

Rated speed rpm : 1230

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1375

rack travel mm : 6.40

Rated speed rpm : 1235

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 77.0
tolerance degree : + 4.0

Control lever difference

Grad : 22.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 550

rack travel mm : 5.90

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : < 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 6.40
Tolerance mm : \pm 0.20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.25
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1800

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 11.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 1265
rack travel mm : 12.70
Tolerance mm : \pm 0.20

Pressure hPa : 875
rack travel mm : 11.80
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 6.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 29.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.97
Test oil : ISO 4113

Combination No. : 0 402 066 709

Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784

Governor
Governor design. : RSV475...1100POA632
Governor no. : 0 421 833 539

Cust. part No. : 3929602

Customer-spec. information
Customer : CDC
Motor : 68TA ELITE
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 6.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.20
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 138.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : ± 0.20

Del. quantity
cm3/1000 strokes : 24.5

Tolerance
cm3/1000 strokes : ± 2.0

Check tolerance
cm3/1000S. : ± 4.5

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 138.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1145
Tolerance 1/min : ± 5

rack travel mm : 5.70
Rated speed rpm : 1230
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Control lever difference
Grad : 15.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : < 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.20

rack travel mm : 2.00
Rated speed rpm : 630
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 975
rack travel mm : 11.50
Tolerance mm : \pm 0.20

Pressure hPa : 545
rack travel mm : 9.85
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 96.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.08.98
Test oil : ISO 4113

Combination No. : 0 402 076 823

Injection pump
Pump designation : PES6P120A720RS3352
EP type number : 0 412 026 780

Governor
Governor design. : RSV400...1100P2A599
: -10
Governor no. : 0 421 833 620

Cust. part No. : RE502438

Customer-spec. information
Customer : DEERE
Motor : 6081AF001
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 133.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 133.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 1160

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1215

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.50

Tolerance mm : \pm 0.10

Rated speed rpm : 100
 CRT mm min. : > 19.00
 Testing:
 Rated speed rpm : 400
 rack travel mm : 6.00
 Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 11.55
 Tolerance mm : \pm 0.05

Rated speed rpm : 700
 rack travel mm : 12.00
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 900

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 9.90
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 575
 rack travel mm : 11.00
 Tolerance mm : \pm 0.20

Pressure hPa : 360
 rack travel mm : 10.40
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100

Check
 speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 900
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 148.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

Aneroid pressure

hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 94.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.00
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 105.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 6.00
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.08.98
Test oil : ISO 4113

Combination No. : 0 402 076 824

Injection pump
Pump designation : PES6P120A720RS3352
EP type number : 0 412 026 780

Governor
Governor design. : RSV400...1100P2A599
: -11
Governor no. : 0 421 833 621

Cust. part No. : RE502439

Customer-spec. information
Customer : DEERE
Motor : 6081AF001
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 133.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 133.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1160

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1215

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.50

Tolerance mm : \pm 0.10

Rated speed rpm : 100
 CRT mm min. : > 19.00
 Testing:
 Rated speed rpm : 400
 rack travel mm : 6.00
 Tolerance mm : \pm 0.10

TORQUE CONTROL
 Rated speed rpm : 1100
 rack travel mm : 11.55
 Tolerance mm : \pm 0.05
 Rated speed rpm : 700
 rack travel mm : 12.00
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 900
 Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 9.90
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
 Pressure hPa : 575
 rack travel mm : 11.00
 Tolerance mm : \pm 0.20
 Pressure hPa : 360
 rack travel mm : 10.40
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
 Check
 speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 900
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 148.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 94.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.00
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 105.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
 Rack travel in mm : 6.00
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Speed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 401 848 813

Injection pump
Pump designation : PE8P110A320LS3846-2
EP type number : 0 411 818 725

Governor
Governor design. : RQ300/1050PA187-30
Governor no. : 0 421 801 552

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM442
Power KW : 195.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.95
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 115.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.5
Spreed	
Tolerance cm ³ /1000 strokes	: 8.5
Check tolerance cm ³ /1000S.	: 13.0

Rated speed rpm	: 300
Rack travel in mm	: 7.50
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 19.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 5.5
Spreed	
Tolerance cm ³ /1000 strokes	: 6.5
Check tolerance cm ³ /1000S.	: 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1108
guide sleeve travel mm	: 7.58
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 2.42
Tolerance mm	: ± 0.20
Rated speed rpm	: 1050
guide sleeve travel mm	: 7.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 421

guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 500
guide sleeve travel mm	: 7.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 1270
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 650
Rack travel in mm	: 13.50
Tolerance mm	: ± 0.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 115.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.5
Spreed	
Tolerance cm ³ /1000 strokes	: 8.5
Check tolerance cm ³ /1000S.	: 13.0

RATED SPEED

rack travel mm	: 10.90
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: ± 15
rack travel mm	: 1.00
Tolerance mm	: ± 1.00
Rated speed rpm	: 1300

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 9.20

Testing:

Rated speed rpm : 300
rack travel mm : 7.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 410
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.95
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 117.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 5.5
Spreed
Tolerance
cm3/1000 strokes : 11.0
Check tolerance
cm3/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : \pm 10.0

Check tolerance
cm3/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.50
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 19.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 5.5

Spreed
Tolerance

cm3/1000 strokes : 6.5

Check tolerance
cm3/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 036 757A

Injection pump
Pump designation : PES6P120A720/3LS3255
: -3
EP type number : 0 412 026 774

Governor
Governor design. : RQV300...1000PA876
: -12
Governor no. : 0 421 813 897

Cust. part No. : 51.11103-7615

Customer-spec. information
Customer : MAN
Motor : D2866LOH24
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.90
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 20.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spreed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1059
guide sleeve
travel mm : 10.14
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : \pm 0.25

Rated speed rpm : 793
guide sleeve
travel mm : 6.88
Tolerance mm : \pm 0.25

Rated speed rpm : 318
guide sleeve
travel mm : 1.89
Tolerance mm : \pm 0.25

Rated speed rpm : 368

guide sleeve
travel mm : 2.47
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.63
Tolerance mm : \pm 0.25

Rated speed rpm : 1270
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1095

Rack travel in mm : 64.38
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 206.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 303.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.90
Rated speed rpm : 1053
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1155
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 261.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.90
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.75
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 450
rack travel mm : 13.25
Tolerance mm : \pm 0.15

Pressure hPa : 120
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 213.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 046 884

Injection pump
Pump designation : PES6P110A32ORS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1396
Governor no. : 0 421 801 838

Cust. part No. : 1351855/0

Customer-spec. information
Customer : DAF
Motor : NS177M (CBP)
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 140
Tolerance L/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : ± 0.05

Del. quantity	_____
cm ³ /1000 strokes :	154.5
Tolerance	_____
cm ³ /1000 strokes :	+ 1.0
Check tolerance	_____
cm ³ /1000S. :	+ 4.0
Spreed	_____
Tolerance	_____
cm ³ /1000 strokes :	8.0
Check tolerance	_____
cm ³ /1000S. :	12.0

Rated speed rpm :	325
Rack travel in mm :	4.40
Tolerance mm :	+ 0.10
Del. quantity	_____
cm ³ /1000 strokes :	26.0
Tolerance	_____
cm ³ /1000 strokes :	+ 3.0
Check tolerance	_____
cm ³ /1000S. :	+ 6.0
Spreed	_____
Tolerance	_____
cm ³ /1000 strokes :	4.0
Check tolerance	_____
cm ³ /1000S. :	8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1292
guide sleeve	_____
travel mm :	6.36
Tolerance mm :	+ 0.15
Rated speed rpm :	325
guide sleeve	_____
travel mm :	1.99
Tolerance mm :	+ 0.20
Rated speed rpm :	1250
guide sleeve	_____
travel mm :	6.00
Tolerance mm :	+ 0.10
Rated speed rpm :	426

guide sleeve	_____
travel mm :	3.48
Tolerance mm :	+ 0.10
Rated speed rpm :	590
guide sleeve	_____
travel mm :	6.00
Tolerance mm :	+ 0.10
Rated speed rpm :	1460
guide sleeve	_____
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1337
Rack travel in mm :	11.80
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
Aneroid pressure	_____
hPa :	1500
Del. quantity	_____
cm ³ /1000 strokes :	154.5
Tolerance	_____
cm ³ /1000 strokes :	+ 1.0
Check tolerance	_____
cm ³ /1000S. :	+ 4.0
Spreed	_____
Tolerance	_____
cm ³ /1000 strokes :	8.0
Check tolerance	_____
cm ³ /1000S. :	12.0

CONTROL LEVER

control lever	_____
position degree :	94.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	11.80
Rated speed rpm :	1290
rack travel mm :	4.00
Rated speed rpm :	1365
Tolerance 1/min :	+ 15
Check	_____
speed 1/min :	+ 20
rack travel mm :	0.50
Tolerance mm :	+ 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 5.77

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 414
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1250
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 310

rack travel mm : 11.40
Tolerance mm : \pm 0.05

Pressure hPa : 110
rack travel mm : 8.60
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 076 821

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1050P8A566
: -6
Governor no. : 0 421 833 615

Cust. part No. :

Customer-spec. information
Customer : NH
Motor : EP 040 B
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 13.20

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 204.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025

Aneroid pressure
hPa : 2000

Del. quantity
cm³/1000 strokes : 204.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067
rack travel mm : 12.20

Rated speed rpm : 1097
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1068
rack travel mm : 12.20

Rated speed rpm : 1098
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1069
rack travel mm : 12.20

Rated speed rpm : 1099
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1070
rack travel mm : 12.20

Rated speed rpm : 1100
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1071
rack travel mm : 12.20

Rated speed rpm : 1101
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1072
rack travel mm : 12.20

Rated speed rpm : 1102
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.00
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 720

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.40
Tolerance mm : \pm 0.20

Rated speed rpm : 500
rack travel mm : 15.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2000
rack travel mm : 15.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 980
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 241.0

Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0

rack travel mm : 15.00
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 89.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm3/1000 strokes : 135.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : \pm 3.0
Check tolerance
cm3/1000S. : \pm 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.08.98
Test oil : ISO 4113

Combination No. : 0 402 086 704

Injection pump
Pump designation : PES6P100B321RS3388
EP type number : 0 412 006 714

Governor
Governor design. : RSV400...1125POA699
Governor no. : 0 421 833 625

Cust. part No. : 51.11103-7607

Customer-spec. information

Customer : MAN
Motor : D0826 LE531
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 925

Rack travel in mm : 14.10
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 174.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 400

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 174.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1175

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1265

Tolerance 1/min : \pm 15

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 4.40

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 400

rack travel mm : 4.90

Tolerance mm : \pm 0.10
rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 925
rack travel mm : 14.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1125
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.10

Rated speed rpm : 1025
rack travel mm : 13.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : \pm 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.45
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 150
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Pressure hPa : 800
rack travel mm : 13.05
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500

E05

Rated speed rpm : 1125
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : 1500
Rated speed rpm : 700
rack travel mm : 14.15
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 187.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 91.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.45
Tolerance mm : \pm 0.45
Del. quantity
cm³/1000 strokes : 112.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.08.98
Test oil : ISO 4113

Combination No. : 0 402 646 626

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1076K
Governor no. : 0 421 815 357

Cust. part No. : 1280160/8

Customer-spec. information
Customer : DAF
Motor : WS 268 M
Power KW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 160
Tolerance L/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 250.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 4.80
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 17.0
Tolerance cm3/1000 strokes	: ± 3.0
Check tolerance cm3/1000S.	: ± 6.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1045
guide sleeve travel mm	: 9.82
Tolerance mm	: ± 0.20
Rated speed rpm	: 275
guide sleeve travel mm	: 2.14
Tolerance mm	: ± 0.15
Rated speed rpm	: 689
guide sleeve travel mm	: 6.43
Tolerance mm	: ± 0.25
Rated speed rpm	: 284

guide sleeve travel mm	: 2.27
Tolerance mm	: ± 0.25
Rated speed rpm	: 334
guide sleeve travel mm	: 3.17
Tolerance mm	: ± 0.25
Rated speed rpm	: 390
guide sleeve travel mm	: 3.79
Tolerance mm	: ± 0.25
Rated speed rpm	: 1310
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1130
Rack travel in mm	: 12.60
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 980
Aneroid pressure hPa	: 1500
Del. quantity cm3/1000 strokes	: 250.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.55
Rated speed rpm	: 1042
Tolerance 1/min	: ± 5

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : \pm 15

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 275
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Rated speed rpm : 980
rack travel mm : 13.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 980
Pressure hPa : -
rack travel mm : 8.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 720
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Pressure hPa : 360
rack travel mm : 9.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 12.10
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 646 706

Injection pump
Pump designation : PE6P120A32OLS7929
EP type number : 0 412 626 978

Governor
Governor design. : RQ300/1050PA1395
Governor no. : 0 421 801 837

Cust. part No. : 0280745602

Customer spec. information
Customer : MB-NFZ
Motor : OM441LA - EURO I
Power kW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0- 60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 197.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

Rated speed rpm	: 300
Rack travel in mm	: 6.50
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 20.0
Tolerance cm3/1000 strokes	: ± 3.0
Check tolerance cm3/1000S.	: ± 6.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1108
guide sleeve travel mm	: 6.38
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 1.70
Tolerance mm	: ± 0.20
Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 415

guide sleeve travel mm	: 4.47
Tolerance mm	: ± 0.10
Rated speed rpm	: 510
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 1280
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 800
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1000
Del. quantity cm3/1000 strokes	: 197.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 95.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.30
Rated speed rpm	: 1100
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 8.70

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 13.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 13.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.55
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 10.00
Tolerance mm : \pm 0.05

Pressure hPa : 600
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 170
Rated speed rpm : $>$ 220

Check
speed 1/min : $>$ 150
Check
speed 1/min : $>$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 670 813

Injection pump
Pump designation : PE12P120A32QLS7923
EP type number : 0 412 620 851

Governor
Governor design. : RSV375...950POA691
Governor no. : 0 421 833 613

Cust. part No. : 0 270 740 802

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 605.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 276.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 375

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure
hPa : 1050

Del. quantity
cm³/1000 strokes : 276.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever

position degree : 91.0

tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 978

Tolerance 1/min : \pm 1

rack travel mm : 13.00

Rated speed rpm : 1053

Tolerance 1/min : \pm 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1200

Rated speed rpm : 979

Tolerance 1/min : \pm 1

rack travel mm : 13.00

Rated speed rpm : 1054

Tolerance 1/min : \pm 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1200

Rated speed rpm : 980

Tolerance 1/min : \pm 1

rack travel mm : 13.00

Rated speed rpm : 1055
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 981
Tolerance 1/min : \pm 1
rack travel mm : 13.00

Rated speed rpm : 1056
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 982
Tolerance 1/min : \pm 1
rack travel mm : 13.00

Rated speed rpm : 1057
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 983
rack travel mm : 13.00

Rated speed rpm : 1058
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 375
rack travel mm : 4.90
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 940
rack travel mm : 14.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1700
rack travel mm : 14.00
Tolerance mm : \pm 0.10

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.50
Tolerance mm : \pm 0.10

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1050
rack travel mm : 13.00

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 550
rack travel mm : 9.65
Tolerance mm : \pm 0.20

Pressure hPa : 750
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Pressure hPa : 1400
rack travel mm : 13.50
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1700
Rated speed rpm : 940
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 375

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 678 836

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RSV550...1050POA672
Governor no. : 0 421 833 591

Cust. part No. : 0270746402

Customer spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 225
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 15.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030
Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1110
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1071
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1111
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1072
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1112
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1073
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1113
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1074
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1114
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1075
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1115
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

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Testing:

Rated speed rpm : 550
rack travel mm : 4.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 15.60
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 15.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1200
rack travel mm : 15.60
Tolerance mm : \pm 0.10

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 9.75
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 600
rack travel mm : 12.20
Tolerance mm : \pm 0.15

Pressure hPa : 800
rack travel mm : 14.10
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 4.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.08.98
Test oil : ISO 4113

Combination No. : 0 402 678 837

Injection pump
Pump designation : PE8P120A320LS7911
EP type number : 0 412 628 926

Governor
Governor design. : RSV550...1050POA679
Governor no. : 0 421 833 598

Cust. part No. : 027 074 6502

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA, Euro
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 227.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.20
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 19.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1100

Del. quantity
cm3/1000 strokes : 227.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 87.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1085
Tolerance 1/min : + 1
rack travel mm : 13.40

Rated speed rpm : 1125
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1087
Tolerance 1/min : + 1
rack travel mm : 13.40

Rated speed rpm : 1127
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1089
Tolerance 1/min : + 1
rack travel mm : 13.40

Rated speed rpm : 1129
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1091
Tolerance 1/min : \pm 1
rack travel mm : 13.40

Rated speed rpm : 1131
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1093
Tolerance 1/min : \pm 1
rack travel mm : 13.40

Rated speed rpm : 1133
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1095
Tolerance 1/min : \pm 1
rack travel mm : 13.40

Rated speed rpm : 1135
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 550
rack travel mm : 4.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 14.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1100
rack travel mm : 14.70
Tolerance mm : \pm 0.10

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : \pm 0.15

Pressure hPa : 750
rack travel mm : 14.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 248.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 4.20
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.08.98
Test oil : ISO 4113

Combination No. : 0 402 746 650

Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914

Governor
Governor design. : RQ275/1050PA999-6
Governor no. : 0 421 801 785

Cust. part No. : CCEP 5151A 66-230

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 062045 M41
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 11.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 287.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131
guide sleeve
travel mm : 6.38
Tolerance mm : \pm 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 0.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 396
guide sleeve
travel mm : 2.99
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1350
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 287.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 274.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1135
Tolerance 1/min : \pm 5

rack travel mm : -7.60
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : -11.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 251.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $<$ -5.80

Testing:

Rated speed rpm : 275
rack travel mm : -7.00
Tolerance mm : \pm 0.10

rack travel mm : -9.60
Rated speed rpm : 365
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

F01

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -3.75
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560
rack travel mm : -1.35
Tolerance mm : \pm 0.15

Pressure hPa : 320
rack travel mm : -2.85
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 111.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.08.98
Test oil : ISO 4113

Combination No. : 0 402 946 022

Injection pump
Pump designation : PES6P120A32ORS8038
EP type number : 0 412 926 025

Governor
Governor design. : RQ250/1000PA1265-1
Governor no. : 0 421 801 801

Cust. part No. : 1380290

Customer-spec. information
Customer : SCANIA
Motor : DSC 9.11

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 277.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 8.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 45.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1073
guide sleeve
travel mm : 4.82
Tolerance mm : \pm 0.15

Rated speed rpm : 250
guide sleeve
travel mm : 1.33
Tolerance mm : \pm 0.20

Rated speed rpm : 990
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 364
guide sleeve
travel mm : 3.50
Tolerance mm : \pm 0.10

Rated speed rpm : 490
guide sleeve
travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1146
guide sleeve
travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 1610
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 16.40
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 8.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 38.0
tolerance degree : \pm 4.0

control lever
position degree : 106.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 1045

Tolerance 1/min : \pm 5

Check

speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : \pm 15

Check

speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1350

LOW IDLE

control lever

position degree : 87.0

tolerance degree : \pm 4.0

control lever

position degree : 25.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 9.50

Testing:

Rated speed rpm : 250

rack travel mm : 7.70

Tolerance mm : \pm 0.10

rack travel mm : 2.00

Rated speed rpm : 355

Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.30

Tolerance mm : \pm 0.05

Rated speed rpm : 1000

rack travel mm : 12.30

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.30

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 10.80

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 330

rack travel mm : 11.20

Tolerance mm : \pm 0.15

Pressure hPa : 600

rack travel mm : 11.90

Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $<$ 190

Rated speed rpm : $>$ 150

Check

speed 1/min : $<$ 210

Check

speed 1/min : $>$ 130

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm³/1000 strokes : 278.0

Tolerance

cm³/1000 strokes : \pm 4.0

Check tolerance

cm³/1000s. : \pm 8.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 032

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1100A0C910R
Governor no. : F 002 A20 222

Cust. part No. : DEP: 3283694

Customer-spec. information
Customer : CUMMINS
Motor : CUMMINS-4BTA-3.9
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 114.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 22.6

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spreed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 114.0

F08

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.95
Rated speed rpm : 1155
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1285

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 81.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 21.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.95
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.10
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200

Rated speed rpm : 800
Pressure hPa : -
rack travel mm : 11.25
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 800

Pressure hPa : 650
rack travel mm : 12.45
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 11.75
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

F09

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 91.7
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.4
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.6
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.08.98
Test oil : ISO 4113
Combination No. : 0 400 876 330
Injection pump
Pump designation : PES6A95D410RS2471
EP type number : 0 410 896 952
Governor
Governor design. : RSV325...1400A2C2205
: L
Governor no. : 0 420 232 445

Cust. part No. :

Customer-spec. information

Customer : KHD
Motor : PPM BF6L913C
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 415 000

Inlet press. bar : 1.0

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

F10

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 89.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 7.30

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.90
Rated speed rpm : 1445
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1505
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1675

rack travel mm : 4.00
Rated speed rpm : 1560
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 7.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 655
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.05
Tolerance mm : \pm 0.10

Rated speed rpm : 850
rack travel mm : 11.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 650
Pressure hPa : 700
rack travel mm : 11.00
Tolerance mm : \pm 0.10

Rated speed rpm : 650
Pressure hPa : -
rack travel mm : 10.35
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 650
Pressure hPa : 180
rack travel mm : 10.55
Tolerance mm : \pm 0.05

Pressure hPa : 220
rack travel mm : 10.75
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 850
rack travel mm : 11.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.09.97
Test oil : ISO 4113

Combination No. : 0 402 066 713

Injection pump
Pump designation : PES6P110A120RS3357
EP type number : 0 412 016 754

Governor
Governor design. : RSV550...1100P2A677
Governor no. : 0 421 833 596

Cust. part No. : 3931957

Customer-spec. information
Customer : CDC
Motor : 6CTA ELITE
Power KW : 208.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 195.5
<hr/>	
Tolerance cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance cm3/1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 7.5
<hr/>	

Rated speed rpm	: 550
<hr/>	
Rack travel in mm	: 6.40
Tolerance mm	: + 0.20
Del. quantity cm3/1000 strokes	: 29.5
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000S.	: + 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1500
Del. quantity cm3/1000 strokes	: 195.5
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 7.5

CONTROL LEVER

control lever position degree	: 99.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 12.00
Rated speed rpm	: 1195
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1285
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1460

rack travel mm	: 4.00
Rated speed rpm	: 1320
Tolerance 1/min	: + 15

LOW IDLE

control lever position degree	: 79.0
tolerance degree	: + 4.0

Control Lever difference

Grad	: 20.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 550
rack travel mm	: 5.90
Tolerance mm	: + 0.10

Rated speed rpm : 100
 CRT mm min. : < 19.00
 Testing:
 Rated speed rpm : 550
 rack travel mm : 6.40
 Tolerance mm : \pm 0.20

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 13.00
 Tolerance mm : \pm 0.05

Rated speed rpm : 750
 rack travel mm : 13.50
 Tolerance mm : \pm 0.20

Rated speed rpm : 1050
 rack travel mm : 13.10
 Tolerance mm : \pm 0.20

Rated speed rpm : 950
 rack travel mm : 13.50
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
 Pressure hPa : 1500

Rated speed rpm : 600
 Pressure hPa : -
 rack travel mm : 11.50
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600
 Pressure hPa : 1150
 rack travel mm : 12.95
 Tolerance mm : \pm 0.20

Pressure hPa : 975
 rack travel mm : 12.15
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 950
 Del. quantity
 cm³/1000 strokes : 212.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 5.0

Aneroid pressure

hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 154.5
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 21.00
 Tolerance mm : \pm 0.50
 Del. quantity
 cm³/1000 strokes : 165.0
 Tolerance
 cm³/1000 strokes : \pm 20.0
 Check tolerance
 cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 550
 Rack travel in mm : 6.40
 Tolerance mm : \pm 0.20
 Del. quantity
 cm³/1000 strokes : 29.5
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 4.5
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.06.98
Test oil : ISO 4113

Combination No. : F 002 AQZ 015DD

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1250AOC892R
Governor no. : F 002 A20 215

Cust. part No. : 3935047

Customer-spec. information
Customer : CDC
Motor : 4BTA ELITE
Power KW : 86.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.35
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 113.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

Rated speed rpm	: 475
Rack travel in mm	: 6.00
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 21.0
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 1000

Del. quantity cm3/1000 strokes	: 113.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 111.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 12.30
Rated speed rpm	: 1320
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10

rack travel mm	: 5.10
Rated speed rpm	: 1410
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1475

rack travel mm	: 5.10
Rated speed rpm	: 1410
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20

LOW IDLE

control lever position degree	: 85.0
tolerance degree	: ± 4.0

Control lever difference

Grad	: 26.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
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rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 6.00
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.35
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1000

Rated speed rpm : 800
Pressure hPa : -
rack travel mm : 12.35
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 800

Pressure hPa : 460
rack travel mm : 13.15
Tolerance mm : \pm 0.20

Pressure hPa : 375
rack travel mm : 12.85
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 103.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.08.98
Test oil : ISO 4113

Combination No. : 0 401 876 789

Injection pump
Pump designation : PE6P120A320RS3189
EP type number : 0 411 826 759

Governor
Governor design. : RSV650...750P4A421
: -13
Governor no. : 0 421 833 466

Cust. part No. : 864818 P06 v. 06/96

Customer-spec. information
Customer : PENTA
Motor : TD710G

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 215
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 180.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 3.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 180.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 92.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.00

Rated speed rpm : 753

Tolerance 1/min : \pm 3

rack travel mm : 4.00

Rated speed rpm : 779

Tolerance 1/min : \pm 7

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 900

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750

rack travel mm : 8.00

Rated speed rpm : 776

Tolerance 1/min : \pm 4

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 900

Rated speed rpm : 751

rack travel mm : 8.00

Rated speed rpm : 777

Tolerance 1/min : \pm 4

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 900

Rated speed rpm : 752
rack travel mm : 8.00

Rated speed rpm : 778
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 900

Rated speed rpm : 753
rack travel mm : 8.00

Rated speed rpm : 779
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 900

Rated speed rpm : 754
rack travel mm : 8.00

Rated speed rpm : 780
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 900

Rated speed rpm : 755
rack travel mm : 8.00

Rated speed rpm : 781
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 900

LOW IDLE

control lever
position degree : 86.0
tolerance degree : \pm 4.0

F22

Testing:

Rated speed rpm : 650
rack travel mm : 3.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 660
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 9.00
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 3.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.98
Test oil : ISO 4113
Combination No. : 0 402 040 701
Injection pump
Pump designation : PES12P120A920RS3402
EP type number : 0 412 020 703
Governor
Governor design. : RQV350...1400PA1145
Governor no. : 0 421 814 092

Cust. part No. :

Customer-spec. information
Customer : FINCANTIERI
Motor : 1312MSD
Power KW : 625.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1-12A-9-4A - 5-8A
: - 11-2A - 3-10A
: - 7
Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 750
Rack travel in mm : 13.10
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 350

Rack travel in mm : 4.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1415
guide sleeve
travel mm : 8.38
Tolerance mm : ± 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.56
Tolerance mm : ± 0.20

Rated speed rpm : 915
guide sleeve
travel mm : 5.32
Tolerance mm : ± 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.41
Tolerance mm : ± 0.25

Rated speed rpm : 1750
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

F24

control lever
position degree : - 1
Rated speed rpm : 1415

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1395
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1585
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1750

LOW IDLE

control lever
position degree : 62.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : > 6.40

Testing:

Rated speed rpm : 350
rack travel mm : 4.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1350
rack travel mm : 13.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 12.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 246.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 510.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 350
Rack travel in mm : 4.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed

Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.07.98
Test oil : ISO 4113

Combination No. : 0 402 630 814

Injection pump
Pump designation : PE12P130A120LS7338
EP type number : 0 412 630 805

Governor
Governor design. : RQV300...825PA1152
Governor no. : 0 421 814 095

Cust. part No. : 4.030.377.3

Customer-spec. information
Customer : SACM
Motor : UD25.V12
Power KW : 1050.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1; 3.2

Test oil inlet
temp. °C : 43
Tolerance °C : ± 2.5

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 443 022

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 060

Outside diameter : 8.0

x inside diameter : 4.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 5- 10- 3
: - 7- 6- 11
: - 2- 9- 4
: - 12

Phasing : 0-37.5-60-97.5-120
: -157.5-180-217.5
: -240-277.5-300
: -337.5
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 825

Rack travel in mm : 12.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 450.5

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 5.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 7.0

Spreed

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 890
guide sleeve
travel mm : 7.85
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.84
Tolerance mm : \pm 0.25

Rated speed rpm : 339
guide sleeve
travel mm : 2.61
Tolerance mm : \pm 0.25

Rated speed rpm : 389
guide sleeve
travel mm : 3.29
Tolerance mm : \pm 0.25

Rated speed rpm : 620
guide sleeve
travel mm : 4.83
Tolerance mm : \pm 0.25

Rated speed rpm : 1130
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1020

Rack travel in mm : 10.00
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 825
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 450.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.00
Rated speed rpm : 875
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 950

Tolerance 1/min : + 15
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1060

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 8.10

Testing:

Rated speed rpm : 300
rack travel mm : 5.40
Tolerance mm : + 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 825
rack travel mm : 12.00
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : > 220

Check
speed 1/min : > 80
Check
speed 1/min : > 240

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.40
Tolerance mm : + 0.10

G01

Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 7.0
Spreed
Tolerance
cm3/1000 strokes : 10.0
Check tolerance
cm3/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.08.98
Test oil : ISO 4113

Combination No. : 0 402 746 657

Injection pump
Pump designation : PES6P120A32ORS7457
EP type number : 0 412 726 977

Governor
Governor design. : RQV325...1200PA1393
Governor no. : 0 421 814 210

Cust. part No. :

Customer-spec. information
Customer : STAR
Motor : T359E-CF
Power KW : 115.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 047

Inlet press. bar : 2.0

Overflow quantity
min. l/h : 95
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 232.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.20
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 14.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1259
guide sleeve
travel mm : 9.83
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.44
Tolerance mm : \pm 0.20

Rated speed rpm : 897
guide sleeve
travel mm : 6.81
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.05
Tolerance mm : \pm 0.25

Rated speed rpm : 1560

guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1320

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 900

Del. quantity
cm3/1000 strokes : 220.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.00
Rated speed rpm : 1265
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1470

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 10.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.20
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 220
rack travel mm : 12.60
Tolerance mm : \pm 0.20

Pressure hPa : 150
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $<$ 100
Rated speed rpm : $>$ 245

Check
speed 1/min : $<$ 80
Check
speed 1/min : $>$ 265

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 212.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.07.98
Test oil : ISO 4113

Combination No. : 0 402 846 303

Injection pump
Pump designation : PE6P120A320LS8526
EP type number : 0 412 826 203

Governor
Governor design. : RQV325...1000PA1392K
Governor no. : 0 421 815 900

Cust. part No. :

Customer-spec. information

Customer : LIAZ
Motor : m1.2c m 640 se
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 086

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.33
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 10.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 288.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1036
guide sleeve
travel mm : 9.59
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.47
Tolerance mm : \pm 0.20

Rated speed rpm : 760
guide sleeve
travel mm : 6.37
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.85
Tolerance mm : \pm 0.25

Rated speed rpm : 1290
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1169

Rack travel in mm : 9.60
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975

Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 288.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.60
Rated speed rpm : 1015
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > 6.11

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 975
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 975
Pressure hPa : 1100
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Rated speed rpm : 975
Pressure hPa : -
rack travel mm : 7.95
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 975
Pressure hPa : 380
rack travel mm : 8.60
Tolerance mm : \pm 0.20

Pressure hPa : 590
rack travel mm : 10.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 245

Check
speed 1/min : > 80

Check
speed 1/min : < 265

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 314.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.00
Del. quantity
cm³/1000 strokes : 400.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98
Test oil : ISO 4113

Combination No. : 9 400 087 506

Injection pump
Pump designation : PES6P120A320/3RS3365
EP type number : 9 400 087 092

Governor
Governor design. : RSV450...900P7A628
Governor no. : 9 420 082 333

Cust. part No. : 3356095

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAAG
Power KW : 240.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.3
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 264.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 264.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : \pm 4.0

control lever
position degree : 111.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 959
rack travel mm : 10.80

Rated speed rpm : 999
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1030

Rated speed rpm : 960
rack travel mm : 10.80

Rated speed rpm : 1000
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1030

Rated speed rpm : 961
rack travel mm : 10.80

Rated speed rpm : 1001
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1030

Rated speed rpm : 962
rack travel mm : 10.80

Rated speed rpm : 1002
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1030

Rated speed rpm : 963
rack travel mm : 10.80

Rated speed rpm : 1003
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1030

Rated speed rpm : 964
rack travel mm : 10.80

Rated speed rpm : 1004
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1030

LOW IDLE

control lever
position degree : 81.0
tolerance degree : \pm 4.0

control lever
position degree : 31.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 4.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 11.85
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 097

Injection pump
Pump designation : PES6A100D320/3RS3517
EP type number : F 002 A10 036

Governor
Governor design. : RSV550...750A7C983R
Governor no. : F 002 A20 027

Cust. part No. :

Customer-spec. information
Customer : TATA
Motor : 6BT
Power KW : 86.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.00

Firing order : 1 - 5 - 3 - 6 - 2 -
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 730

Rack travel in mm : 12.20
Tolerance mm : \pm 0.05

Rack travel in mm : 6.45
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.25

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 750
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 795
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

rack travel mm : 4.00
Rated speed rpm : 810
Tolerance 1/min : \pm 10

LOW IDLE

control lever
position degree : 81.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 13.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 5.45
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 6.45
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 600
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 730
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.20
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

rack travel mm : 11.20
Tolerance mm : \pm 0.20

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.70
Tolerance mm : \pm 0.50

LOW IDLE

Rack travel in mm : 6.45
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.06.97
Test oil : ISO 4113

Combination No. : 0 402 066 702AA

Injection pump
Pump designation : PES6P110A120RS3336
: -1
EP type number : 0 412 016 751

Governor
Governor design. : RSV550...1100P2A586
: -1
Governor no. : 0 421 833 580

Cust. part No. : 3933640

Customer-spec. information

Customer : CDC
Motor : 6CTA
Power KW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

G17

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 201.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 550

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.80
Tolerance mm : \pm 0.50

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 201.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.75
Rated speed rpm : 1010
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1130

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 16.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.60

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1500

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 995
rack travel mm : 13.45
Tolerance mm : \pm 0.20

Pressure hPa : 655
rack travel mm : 12.05
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 123.5

Tolerance

cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm3/1000 strokes : 154.0
Tolerance
cm3/1000 strokes : \pm 20.0
Check tolerance
cm3/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 26.5
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 6.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.09.97
Test oil : ISO 4113

Combination No. : 0 402 736 866AA

Injection pump
Pump designation : PES6P120A120RS7349
EP type number : 0 412 726 920

Governor
Governor design. : RQV400...1250PA1171K
Governor no. : 0 421 815 437

Cust. part No. : 3933299

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 177.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 5.60
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1410

Rack travel in mm : 13.00
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 177.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.90
Rated speed rpm : 1320

Tolerance 1/min : ± 15
Check

speed 1/min : ± 20

rack travel mm : 4.00
Rated speed rpm : 1475

Tolerance 1/min : ± 5
Check

speed 1/min : ± 10

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Control lever difference
Grad : 48.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 8.90

Testing:

Rated speed rpm : 420
rack travel mm : 5.60
Tolerance mm : ± 0.20

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 800

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 520
rack travel mm : 12.90
Tolerance mm : \pm 0.30

Pressure hPa : 240
rack travel mm : 10.30
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 330

Check
speed 1/min : > 80
Check
speed 1/min : < 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800

Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

rack travel mm : 10.90
Tolerance mm : \pm 0.20

Aneroid pressure

hPa : -
Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 71.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.50
Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : \pm 20.0

Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 5.60
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.08.98
Test oil : ISO 4113

Combination No. : 0 403 466 177

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV450...1100MWOA413
Governor no. : 0 420 085 304

Cust. part No. : 3931283

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.35
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 120.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 120.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.35

Rated speed rpm : 1175

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1275

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 10

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1450

rack travel mm : 4.00

Rated speed rpm : 1285

Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 13.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.40
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 10.70
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590
rack travel mm : 11.10

Tolerance mm : \pm 0.20

Pressure hPa : 545
rack travel mm : 10.90
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

rack travel mm : 10.70
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 122.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.08.98
Test oil : ISO 4113

Combination No. : 0 403 466 183

Injection pump
Pump designation : PES6MW100/120RS1247
EP type number : 0 413 406 248

Governor
Governor design. : RSV550...1100MW5A414
Governor no. : 0 420 085 305

Cust. part No. : 3935478

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.05
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

H01

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 1185

Tolerance 1/min : \pm 5
Check

speed 1/min : \pm 10

rack travel mm : 8.00
Rated speed rpm : 1225

Tolerance 1/min : \pm 5
Check

speed 1/min : \pm 10

rack travel mm : 1.00
Tolerance mm : \pm 0.70

Rated speed rpm : 1350

rack travel mm : 8.00
Rated speed rpm : 1225

Tolerance 1/min : \pm 15
Check

speed 1/min : \pm 20

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 24.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 4.55
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 5.05
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.55
Tolerance mm : \pm 0.20

Rated speed rpm : 1000
rack travel mm : 13.55
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.05
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.30

H02

Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : 11.80
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 170.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 5.05
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.08.98
Test oil : ISO 4113

Combination No. : 0 402 018 703

Injection pump
Pump designation : PES8P130A300RS3403
EP type number : 0 412 038 700

Governor
Governor design. :
Governor no. :

Cust. part No. :

Customer-spec. information
Customer : FINCANTIERI
Motor : V 1308T3
Power KW : 520.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 0.50

Firing order : 1- 2- 7- 8- 4
: - 5- 6- 3

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 288.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 14.00
Tolerance mm : \pm 0.05

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 21.08.98

Test oil : ISO 4113

Combination No. : 0 402 046 883

Injection pump

Pump designation : PES6P120A1320/5LS339

: 9

EP type number : 0 412 026 808

Governor

Governer design. : RQ750PA1387

Governer no. : 0 421 801 834

Cust. part No. : 1409259

Customer spec. information

Customer : SCANIA

Motor : DSC12 40A

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 20.0

Test nozzle holde
assembly

: 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

H06

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 4- 2- 6- 3-
: 5

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 180.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.00

Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 190.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 8.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

Del. quantity cm3/1000 strokes	: 20.0
Tolerance cm3/1000 strokes	: ± 3.0
Check tolerance cm3/1000S.	: ± 6.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 758
guide sleeve travel mm	: 4.63
Tolerance mm	: ± 0.15

Rated speed rpm	: 480
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Rated speed rpm	: 840
guide sleeve travel mm	: 18.07
Tolerance mm	: ± 0.25

Rated speed rpm	: 798
guide sleeve travel mm	: 10.00
Tolerance mm	: ± 0.25

Rated speed rpm	: 850
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure hPa	: 1500
Del. quantity cm3/1000 strokes	: 190.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 8.0
Spreed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 26.0
tolerance degree	: ± 4.0

control lever position degree	: 88.0
tolerance degree	: ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 748
rack travel mm	: 11.00

Rated speed rpm	: 772
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 850

Rated speed rpm	: 749
rack travel mm	: 11.00

Rated speed rpm	: 773
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 850

Rated speed rpm	: 750
rack travel mm	: 11.00

Rated speed rpm : 774
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 751
rack travel mm : 11.00

Rated speed rpm : 775
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 752
rack travel mm : 11.00

Rated speed rpm : 776
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 753
rack travel mm : 11.00

Rated speed rpm : 777
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

LOW IDLE

control lever
position degree : 68.0
tolerance degree : + 4.0

control lever
position degree : 37.0
tolerance degree : + 4.0

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.00

H08

Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.00
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560
rack travel mm : 10.60
Tolerance mm : + 0.15

Pressure hPa : 750
rack travel mm : 11.50
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 142.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.08.98

Test oil : ISO 4113

Combination No. : 0 402 048 708

Injection pump

Pump designation : PES8P120A320RS3401

EP type number : 0 412 028 709

Governor

Governer design. : RQV350...1400PA1028

Governer no. : 0 421 813 987

Cust. part No. :

Customer-spec. information

Customer : FINCANTIERI

Motor : 1308 V

Power KW : 500.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 100

Tolerance l/h : ± 20.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1-2A- 7-8A - 4-5A

: - 6

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 13.10

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 288.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.20

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 20.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spreed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1415
guide sleeve
travel mm : 8.38
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.56
Tolerance mm : \pm 0.20

Rated speed rpm : 915
guide sleeve
travel mm : 5.32
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.41
Tolerance mm : \pm 0.25

Rated speed rpm : 1750
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1465

Rack travel in mm : 14.30
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 288.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0
Spreed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 116.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1395
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1580
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1750

LOW IDLE

control lever
position degree : 68.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.20

Testing:

Rated speed rpm : 350

rack travel mm : 4.20

Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 13.10

Tolerance mm : \pm 0.05

Rated speed rpm : 1350

rack travel mm : 13.10

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1000

rack travel mm : 13.10

Tolerance mm : \pm 0.05

Rated speed rpm : 50

Pressure hPa : -

rack travel mm : 10.00

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350

rack travel mm : 11.00

Tolerance mm : \pm 0.20

Pressure hPa : 400

rack travel mm : 12.00

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000

Rated speed rpm : 1350

Del. quantity
cm³/1000 strokes : 243.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100

rack travel mm : 20.25

Tolerance mm : \pm 0.75

Del. quantity
cm³/1000 strokes : 490.0

Tolerance
cm³/1000 strokes : \pm 20.0

Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.

Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 350

Rack travel in mm : 4.20

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : +- 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : 0 402 076 810

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1050P8A566
: -4
Governor no. : 0 421 833 583

Cust. part No. : 87801590

Customer-spec. information
Customer : NH
Motor : EP 040 B
Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.35

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 183.0
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 6.0
<hr/>	
Speed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 5.0
<hr/>	
Check tolerance cm ³ /1000S.	: 9.0
<hr/>	

Rated speed rpm	: 650
<hr/>	
Rack travel in mm	: 4.60
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 23.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Speed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1025
Aneroid pressure hPa	: 1600
Del. quantity cm ³ /1000 strokes	: 183.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 6.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 95.0
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ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 1067
rack travel mm	: 11.30
<hr/>	
Rated speed rpm	: 1097
Tolerance 1/min	: + 5
rack travel mm	: 4.00
<hr/>	
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

Rated speed rpm	: 1068
rack travel mm	: 11.30

Rated speed rpm	: 1098
Tolerance 1/min	: + 5
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

Rated speed rpm	: 1069
rack travel mm	: 11.30

Rated speed rpm	: 1099
Tolerance 1/min	: + 5
rack travel mm	: 4.00

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

Rated speed rpm : 1070
rack travel mm : 11.30

Rated speed rpm : 1100
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1071
rack travel mm : 11.30

Rated speed rpm : 1101
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1072
rack travel mm : 11.30

Rated speed rpm : 1102
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 750

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 13.10
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 13.10
Tolerance mm : \pm 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.80
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 980
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 13.10
Tolerance mm : \pm 0.15

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 650

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.08.98
Test oil : ISO 4113

Combination No. : 0 402 646 675

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1337K
Governor no. : 0 421 815 554

Cust. part No. : 1322504/8

Customer-spec. information
Customer : DAF
Motor : WS 268 M
Power KW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 140
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	250.0
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 4.0
Spreed		
Tolerance cm3/1000 strokes	:	5.0
Check tolerance cm3/1000S.	:	9.0

Rated speed rpm	:	275
Rack travel in mm	:	5.10
Tolerance mm	:	+ 0.10
Del. quantity cm3/1000 strokes	:	17.0
Tolerance cm3/1000 strokes	:	+ 3.0
Check tolerance cm3/1000S.	:	+ 6.0
Spreed		
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1047
guide sleeve travel mm	:	7.35
Tolerance mm	:	+ 0.15
Rated speed rpm	:	275
guide sleeve travel mm	:	2.04
Tolerance mm	:	+ 0.20
Rated speed rpm	:	820
guide sleeve travel mm	:	5.14
Tolerance mm	:	+ 0.25
Rated speed rpm	:	480

guide sleeve travel mm	:	3.34
Tolerance mm	:	+ 0.25

Rated speed rpm	:	1282
guide sleeve travel mm	:	12.00
Tolerance mm	:	+ 0.25

Rated speed rpm	:	1370
guide sleeve travel mm	:	13.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1248

Rack travel in mm	:	12.80
Tolerance mm	:	+ 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	980
Aneroid pressure hPa	:	-
Del. quantity cm3/1000 strokes	:	250.0
Tolerance cm3/1000 strokes	:	+ 1.0
Check tolerance cm3/1000S.	:	+ 4.0
Spreed		
Tolerance cm3/1000 strokes	:	5.0
Check tolerance cm3/1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	110.0
tolerance degree	:	+ 4.0

RATED SPEED		
rack travel mm	:	12.55
Rated speed rpm	:	1042
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1150
Tolerance 1/min	:	+ 15

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 275
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.35
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 980
rack travel mm : 13.70
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55

H2O

Tolerance mm : \pm 0.05

Rated speed rpm : 980
Pressure hPa : -
rack travel mm : 8.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 720
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Pressure hPa : 360
rack travel mm : 9.65
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 12.35
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98
Test oil : ISO 4113

Combination No. : 0 402 744 803

Injection pump
Pump designation : PES4P120A320RS7312
: -1
EP type number : 0 412 724 803

Governor
Governor design. : RQV400...1200PA1131
: -1
Governor no. : 0 421 814 154

Cust. part No. : 51.11103-7470

Customer-spec. information
Customer : MAN
Motor : D0824 LFL 06
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 110
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5

H22

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.70

Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 40.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1261
guide sleeve
travel mm : 10.15
Tolerance mm : + 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.57
Tolerance mm : + 0.20

Rated speed rpm : 836
guide sleeve
travel mm : 5.76
Tolerance mm : + 0.25

Rated speed rpm : 458
guide sleeve
travel mm : 2.45
Tolerance mm : + 0.25

Rated speed rpm : 508
guide sleeve
travel mm : 3.10
Tolerance mm : + 0.25

Rated speed rpm : 540
guide sleeve
travel mm : 3.61
Tolerance mm : + 0.25

Rated speed rpm : 1490
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1330

Rack travel in mm : 12.00
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 206.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Spread
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 301.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.35
Rated speed rpm : 1250
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1340
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1480

LOW IDLE

control lever
position degree : 258.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 400
rack travel mm : 4.70
Tolerance mm : \pm 0.10

Rated speed rpm : 440

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 13.35
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.35
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.95
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : 8.80
Tolerance mm : \pm 0.15

Pressure hPa : 500
rack travel mm : 12.35
Tolerance mm : \pm 0.25

Start interlock

Rated speed rpm : $<$ 280
Rated speed rpm : $>$ 320

Check
speed 1/min : $<$ 260
Check
speed 1/min : $>$ 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
rack travel mm : 13.35
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 4.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98
Test oil : ISO 4113

Combination No. : 0 402 744 809

Injection pump
Pump designation : PES4P120A320RS7312
: -1
EP type number : 0 412 724 803

Governor
Governor design. : RGV400...1200PA1397
Governor no. : 0 421 814 212

Cust. part No. : 51.11103-7579

Customer-spec. information
Customer : MAN
Motor : D 0824 LOH 05
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 208.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 40.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1261
guide sleeve
travel mm : 10.26
Tolerance mm : \pm 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 2.21
Tolerance mm : \pm 0.20

Rated speed rpm : 822
guide sleeve
travel mm : 5.79
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.53
Tolerance mm : \pm 0.25

Rated speed rpm : 1490

H27

guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1330

Rack travel in mm : 12.20
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 208.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 302.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.20
Rated speed rpm : 1250
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1345
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 262.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 7.00

Testing:

Rated speed rpm : 400

rack travel mm : 4.70

Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.20

Tolerance mm : \pm 0.05

Rated speed rpm : 1200

rack travel mm : 13.20

Tolerance mm : \pm 0.10

Rated speed rpm : 700

rack travel mm : 13.20

Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1200

rack travel mm : 13.20

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 8.95

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 450

rack travel mm : 11.80

Tolerance mm : \pm 0.20

Pressure hPa : 200

rack travel mm : 9.40

Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 290

Rated speed rpm : < 320

Check
speed 1/min : > 270

Check
speed 1/min : < 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 208.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : 1200

Rated speed rpm : 700

rack travel mm : 13.20

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 216.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 136.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 215.0

Tolerance
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.08.98
Test oil : ISO 4113

Combination No. : 0 402 846 303

Injection pump
Pump designation : PE6P120A320LS8526
EP type number : 0 412 826 203

Governor
Governor design. : RQV325...1000PA1392K
Governor no. : 0 421 815 900

Cust. part No. :

Customer-spec. information

Customer : LIAZ
Motor : m1.2c m 640 se
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 086

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.33
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 10.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 288.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : +- 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.50

Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 25.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000S. : +- 6.0

Speed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1036

guide sleeve

travel mm : 9.59

Tolerance mm : +- 0.15

Rated speed rpm : 325

guide sleeve

travel mm : 1.47

Tolerance mm : +- 0.20

Rated speed rpm : 760

guide sleeve

travel mm : 6.37

Tolerance mm : +- 0.25

Rated speed rpm : 510

guide sleeve

travel mm : 3.85

Tolerance mm : +- 0.25

Rated speed rpm : 1290

guide sleeve

travel mm : 13.50

Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1169

Rack travel in mm : 9.60

Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975

Aneroid pressure

hPa : 1100

Del. quantity

cm3/1000 strokes : 288.5

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000S. : +- 4.0

Speed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 116.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.60

Rated speed rpm : 1015

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1090

Tolerance 1/min : +- 15

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 70.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > 6.10

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 975
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 975
Pressure hPa : 1100
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Rated speed rpm : 975
Pressure hPa : -
rack travel mm : 7.95
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 975

Pressure hPa : 380
rack travel mm : 8.35
Tolerance mm : \pm 0.20

Pressure hPa : 590
rack travel mm : 10.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 245

Check
speed 1/min : > 80

Check
speed 1/min : < 265

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 314.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 400.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.08.98
Test oil : ISO 4113

Combination No. : 0 402 848 300

Injection pump
Pump designation : PE8P120A520LS8518
EP type number : 0 412 828 201

Governor
Governor design. : RQV300...1150PA1323K
Governor no. : 0 421 815 963

Cust. part No. : 51.11103-7492

Customer-spec. information

Customer : MAN
Motor : D 2848 LE 403
Power KW : 588.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 130
Tolerance l/h : ± 15.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 8-7A- 2- 6A- 3
: - 5A- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.00
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 335.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spread	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

Rated speed rpm	: 300
Rack travel in mm	: 5.50
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 49.0
Tolerance cm3/1000 strokes	: ± 3.0
Check tolerance cm3/1000S.	: ± 8.0
Spread	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1206
guide sleeve travel mm	: 9.84
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 1.61
Tolerance mm	: ± 0.20
Rated speed rpm	: 797
guide sleeve travel mm	: 6.36
Tolerance mm	: ± 0.25
Rated speed rpm	: 460

guide sleeve travel mm	: 3.78
Tolerance mm	: ± 0.25
Rated speed rpm	: 1500
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1323
Rack travel in mm	: 13.00
Tolerance mm	: ± 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure hPa	: 2000
Del. quantity cm3/1000 strokes	: 335.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 4.0
Spread	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 118.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 13.00
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1335
Tolerance 1/min	: ± 15
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1475

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 7.70

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 332

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 850
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 11.20
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 6.30
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 7.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 2000
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -

rack travel mm : 7.80
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 400
rack travel mm : 8.40
Tolerance mm : \pm 0.05

Pressure hPa : 1100
rack travel mm : 12.20
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : $>$ 200
Rated speed rpm : $<$ 250

Check
speed 1/min : $>$ 190
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 315.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

Aneroid pressure
hPa : 2000
Rated speed rpm : 850
rack travel mm : 12.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

Aneroid pressure
hPa : 2000
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 277.0

Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500

Delivery for shutoff assemblies
(refer to cam sequence).
Arbitrary delivery for standard plunger
barrel assemblies.

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 15.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 49.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 8.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.08.98
Test oil : ISO 4113

Combination No. : 0 400 863 027

Injection pump
Pump designation : PES3A95D410/3RS2939
EP type number : 0 410 893 995

Governor
Governor design. : RSV325...1250A5C860L
Governor no. : 0 420 232 623

Cust. part No. : 0423 2521 KY

Customer-spec. information
Customer : KHD
Motor : F3L913 COM1
Power KW : 44.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 17.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 9.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 57.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm3/1000 strokes : 3.4

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.00

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread
Tolerance

cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 57.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 3.0
Spread
Tolerance
cm3/1000 strokes : 3.4

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 8.80
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1345
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1370
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 9.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 9.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.50
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 9.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.08.98
Test oil : ISO 4113

Combination No. : 0 400 864 115

Injection pump
Pump designation : PES4A75D410/3RS2945
EP type number : 0 410 874 993

Governor
Governor design. : RSV325...1250A5C954L
Governor no. : 0 420 232 644

Cust. part No. : 0423 2470 KY

Customer-spec. information
Customer : KHD
Motor : F4L 913W
Power KW : 44.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 55.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 8.00
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 10.0

Tolerance
cm3/1000 strokes : \pm 1.5

Check tolerance
cm3/1000S. : \pm 3.5

Spread
Tolerance

cm3/1000 strokes : 4.0
Check tolerance

cm3/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 55.0

Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 2.0

Spread
Tolerance

cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 101.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.00
Rated speed rpm : 1295
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1335
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1505

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 67.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 465
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.08.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 080

Injection pump
Pump designation : PES3A90D410RS2955
EP type number : F 002 A10 032

Governor
Governor design. : RSV300...1000A2B2281
: L
Governor no. : 9 420 034 610

Cust. part No. :

Customer-spec. information
Motor : F3-315
Power KW : 37.2

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1-2-3- _

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 73.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 7.35
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 strokes : \pm 1.5
Check tolerance
cm3/1000S. : \pm 3.0
Speed
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 73.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 2.5
Speed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1155
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 61.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.85
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 17.00

Testing:

Rated speed rpm : 325
rack travel mm : 7.35
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 440
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.50
Tolerance mm : \pm 0.05

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 6.0

Aneroid pressure
hPa : -
Tolerance mm : \pm 0.05
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.25
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.35
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.08.98
Test oil : ISO 4113

Combination No. : 0 402 046 875

Injection pump
Pump designation : PES6P110A320RS3329Z
EP type number : 0 412 016 744

Governor
Governor design. : RQV325...1250PA1251
Governor no. : 0 421 814 164

Cust. part No. : 1309376/4

Customer-spec. information
Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1298
guide sleeve
travel mm : 10.25
Tolerance mm : ± 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.25
Tolerance mm : ± 0.20

Rated speed rpm : 863
guide sleeve
travel mm : 5.41
Tolerance mm : ± 0.25

Rated speed rpm : 520

guide sleeve
travel mm : 3.02
Tolerance mm : ± 0.25

Rated speed rpm : 1510
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1370

Rack travel in mm : 10.85
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.85
Rated speed rpm : 1300
Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1375

Tolerance 1/min : ± 15

Check
speed 1/min : ± 20
rack travel mm : 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 11.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.35
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 11.85
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 882

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1250PA1385
Governor no. : 0 421 814 209

Cust. part No. : 1351707/1

Customer-spec. information
Customer : DAF
Motor : NS177M-CBP
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.80
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
: - 4

Phasing : 0- 60- 120- 180
: - 240- 300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.70

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1303
guide sleeve
travel mm : 10.33
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.25
Tolerance mm : \pm 0.20

Rated speed rpm : 865
guide sleeve
travel mm : 5.43
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.02
Tolerance mm : \pm 0.25

Rated speed rpm : 1510
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 11.80
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 154.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1290
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1375
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 210
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Pressure hPa : 410
rack travel mm : 11.40
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

ANEROID pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 884

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1396
Governor no. : 0 421 801 838

Cust. part No. : 1351855/0

Customer-spec. information
Customer : DAF
Motor : NS177M (CBP)
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1292
guide sleeve
travel mm : 6.36
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : \pm 0.20

Rated speed rpm : 1250
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 426
guide sleeve
travel mm : 3.48
Tolerance mm : \pm 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1460
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1290

rack travel mm : 4.00
Rated speed rpm : 1370
Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20
rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 5.77

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 414
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1250
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 310
rack travel mm : 11.40
Tolerance mm : \pm 0.05

Pressure hPa : 110
rack travel mm : 8.60
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure:

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.08.98
Test oil : ISO 4113

Combination No. : 0 402 076 826

Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1050P8A566
: -7
Governor no. : 0 421 833 626

Cust. part No. : 87801590

Customer-spec. information
Customer : NH
Motor : EP 040 B
Power KW : 202.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

K01

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.35

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.60

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025

Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 91.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067
rack travel mm : 11.30

Rated speed rpm : 1097
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1068
rack travel mm : 11.30

Rated speed rpm : 1098
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1069
rack travel mm : 11.30

Rated speed rpm : 1099
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1070
rack travel mm : 11.30

Rated speed rpm : 1100
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1071
rack travel mm : 11.30

Rated speed rpm : 1101
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1072
rack travel mm : 11.30

Rated speed rpm : 1102
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.05

K03

Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 13.10
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 13.10
Tolerance mm : \pm 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.80
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 980
rack travel mm : 11.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

rack travel mm : 13.10
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Tolerance mm : \pm 0.50
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.08.98
Test oil : ISO 4113

Combination No. : 0 402 646 679

Injection pump
Pump designation : PE6P120A320RS7447Z
EP type number : 0 412 626 969

Governor
Governor design. : R0275/1150PA1361
Governor no. : 0 421 801 825

Cust. part No. : 1329610

Customer-spec. information

Customer : DAF
Motor : GS 160
Power KW : 160.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.60
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.60
Tolerance mm : ± 0.05

Del. quantity	
cm3/1000 strokes :	154.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	9.0

Rated speed rpm :	275
Rack travel in mm :	5.05
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	24.0
Tolerance	
cm3/1000 strokes :	+ 3.0
Check tolerance	
cm3/1000S. :	+ 6.0
Spreed	
Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	1202
guide sleeve	
travel mm :	6.51
Tolerance mm :	+ 0.15
Rated speed rpm :	275
guide sleeve	
travel mm :	2.08
Tolerance mm :	+ 0.20
Rated speed rpm :	1150
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10
Rated speed rpm :	355

guide sleeve	
travel mm :	4.57
Tolerance mm :	+ 0.10

Rated speed rpm :	440
guide sleeve	
travel mm :	6.00
Tolerance mm :	+ 0.10

Rated speed rpm :	1360
guide sleeve	
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

control lever	
position degree :	- 1
Rated speed rpm :	600

Rack travel in mm :	16.00
Tolerance mm :	+ 0.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
Aneroid pressure	
hPa :	1000
Del. quantity	
cm3/1000 strokes :	154.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	9.0

CONTROL LEVER

control lever	
position degree :	97.0
tolerance degree :	+ 4.0

RATED SPEED	
rack travel mm :	9.60
Rated speed rpm :	1202
Tolerance 1/min :	+ 8

rack travel mm :	4.00
Rated speed rpm :	1275
Tolerance 1/min :	+ 15

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 275
rack travel mm : 5.05
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 350
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
rack travel mm : 10.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 6.75
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 600

K07

Pressure hPa : 175
rack travel mm : 9.60
Tolerance mm : \pm 0.05

Pressure hPa : 80
rack travel mm : 7.50
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 101.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.05
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.08.98
Test oil : ISO 4113

Combination No. : 0 402 646 682

Injection pump
Pump designation : PE6P120A320RS7438
EP type number : 0 412 626 965

Governor
Governor design. : RQV275...1150PA1386K
Governor no. : 0 421 815 563

Cust. part No. : 1349449

Customer-spec. information

Customer : DAF
Motor : PF 235 M (flach)
Power KW : 235.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 15.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.50
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 259.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 16.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Spreed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1174
guide sleeve travel mm	: 7.43
Tolerance mm	: ± 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 1.71
Tolerance mm	: ± 0.20
Rated speed rpm	: 940
guide sleeve travel mm	: 5.44
Tolerance mm	: ± 0.25
Rated speed rpm	: 520

guide sleeve travel mm	: 3.40
Tolerance mm	: ± 0.25
Rated speed rpm	: 1427
guide sleeve travel mm	: 12.00
Tolerance mm	: ± 0.25
Rated speed rpm	: 1520
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1401
Rack travel in mm	: 12.20
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 850
Aneroid pressure hPa	: 1500
Del. quantity cm ³ /1000 strokes	: 259.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 110.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 12.20
Rated speed rpm	: 1185
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10
rack travel mm	: 4.00
Rated speed rpm	: 1295
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : $>$ 7.60

Testing:

Rated speed rpm : 275
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 395

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 13.50
Tolerance mm : \pm 0.05

Rated speed rpm : 1130
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.25
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.45
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 875
Pressure hPa : 1500
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 875
Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 650
rack travel mm : 12.70
Tolerance mm : \pm 0.05

Pressure hPa : 350
rack travel mm : 10.60
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500
Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 232.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 13.25
Tolerance mm : \pm 0.10

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.07.98
Test oil : ISO 4113

Combination No. : 0 402 646 778

Injection pump
Pump designation : PE6P120A320LS7872
EP type number : 0 412 626 912

Governor
Governor design. : RQV300...950PA1162
Governor no. : 0 421 814 101

Cust. part No. : B0165-6-3

Customer-spec. information
Customer : KHD
Motor : BF6M1015C
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 14.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1009
guide sleeve
travel mm : 9.48
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.36
Tolerance mm : + 0.25

Rated speed rpm : 718
guide sleeve
travel mm : 5.97
Tolerance mm : + 0.25

Rated speed rpm : 343
guide sleeve
travel mm : 1.96
Tolerance mm : + 0.25

Rated speed rpm : 393

guide sleeve
travel mm : 2.55
Tolerance mm : + 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 3.45
Tolerance mm : + 0.25

Rated speed rpm : 1250
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1075

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1700

Del. quantity
cm³/1000 strokes : 350.0
Tolerance

cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 13.20
Rated speed rpm : 995
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $>$ 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 14.20
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1700
rack travel mm : 14.20
Tolerance mm : \pm 0.05

Rated speed rpm : 400
Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 385
rack travel mm : 9.80
Tolerance mm : \pm 0.10

Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 9.00
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98

Test oil : ISO 4113

Combination No. : F 002 A02 080

Injection pump

Pump designation : PES3A90D410RS2955

EP type number : F 002 A10 032

Governor

Governer design. : RSV300...1000A2B2281

: L

Governer no. : 9 420 034 610

Cust. part No. :

Customer-spec. information

Motor : F3-315

Power KW : 37.2

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 1.5

Test nozzle holde assembly

: 0 681 343 009

Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1-2-3- _

Phasing : 0-120-240

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.50

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 73.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 7.35
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 8.0

Tolerance
cm3/1000 strokes : \pm 1.5

Check tolerance
cm3/1000S. : \pm 3.0

Spread
Tolerance

cm3/1000 strokes : 2.0

Check tolerance
cm3/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm3/1000 strokes : 73.5

Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 2.5

Spread
Tolerance

cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.50
Rated speed rpm : 1140
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1180
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.85
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 17.00

Testing:

Rated speed rpm : 325
rack travel mm : 7.35
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.50
Tolerance mm : \pm 0.05

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 6.0

Aneroid pressure
hPa : -
Tolerance mm : \pm 0.05
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 5.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.25
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.35
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.03.98
Test oil : ISO 4113

Combination No. : 9 400 030 732

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1250AOC845R
Governor no. : 9 420 034 711

Cust. part No. : 3929407

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 88.5
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

Rated speed rpm	: 475
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 18.5
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension	
click setting x	: 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
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K19

Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 88.5
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 117.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 9.80
Rated speed rpm	: 1315
Tolerance 1/min	: ± 5

rack travel mm	: 5.50
Rated speed rpm	: 1375
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1500

rack travel mm	: 5.50
Rated speed rpm	: 1375
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 91.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 26.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.60
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800
rack travel mm : 10.80
Tolerance mm : \pm 0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5

Tolerance

cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 855

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1300PA1119
Governor no. : 0 421 814 083

Cust. part No. : 1284418/4

Customer-spec. information
Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1353
guide sleeve
travel mm : 8.29
Tolerance mm : ± 0.20

Rated speed rpm : 325
guide sleeve
travel mm : 1.33
Tolerance mm : ± 0.15

Rated speed rpm : 900
guide sleeve
travel mm : 4.92
Tolerance mm : ± 0.25

Rated speed rpm : 405
guide sleeve
travel mm : 2.07

Tolerance mm : ± 0.25

Rated speed rpm : 455
guide sleeve
travel mm : 2.52
Tolerance mm : ± 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 2.93
Tolerance mm : ± 0.25

Rated speed rpm : 1640
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1450

Rack travel in mm : 10.80
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.85
Rated speed rpm : 1342
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1460
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

K23

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.35
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

rack travel mm : 11.85
Tolerance mm : \pm 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump
Pump designation : PE6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325/1300PA1150
Governor no. : 0 421 801 716

Cust. part No. : 1284420/6

Customer-spec. information
Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1351
guide sleeve
travel mm : 6.37
Tolerance mm : \pm 0.10

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : \pm 0.10

Rated speed rpm : 1300
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 427
guide sleeve
travel mm : 3.54

Tolerance mm : \pm 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1570
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 650

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.85
Rated speed rpm : 1345

Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1450
Tolerance 1/min : \pm 15

Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 12.85
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85

K27

Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.35
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : + 0.05

Pressure hPa : 200
rack travel mm : 8.55
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0

rack travel mm : 11.85
Tolerance mm : + 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 873

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1250PA1251
Governor no. : 0 421 814 164

Cust. part No. : 1305227

Customer-spec. information
Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

L01

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 149.5

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 26.0

Tolerance
cm3/1000 strokes : \pm 2.5

Check tolerance
cm3/1000S. : \pm 5.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1308

guide sleeve

travel mm : 10.40

Tolerance mm : \pm 0.15

Rated speed rpm : 325

guide sleeve

travel mm : 1.25

Tolerance mm : \pm 0.20

Rated speed rpm : 868

guide sleeve

travel mm : 5.45

Tolerance mm : \pm 0.25

Rated speed rpm : 520

guide sleeve

travel mm : 3.02

Tolerance mm : \pm 0.25

Rated speed rpm : 1510

guide sleeve

travel mm : 13.50

Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1360

Rack travel in mm : 11.25

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure

hPa : 1500

Del. quantity

cm3/1000 strokes : 149.5

Tolerance

cm3/1000 strokes : \pm 1.0

Check tolerance

cm3/1000S. : \pm 4.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 123.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.25

Rated speed rpm : 1290

Tolerance 1/min : \pm 5

Check

speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1375

Tolerance 1/min : \pm 15

Check

speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.25
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

L03

Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Pressure hPa : 220
rack travel mm : 8.10
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 12.25
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1370
Governor no. : 0 421 801 828

Cust. part No. : 1305236/2

Customer-spec. information
Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1292
guide sleeve
travel mm : 6.37
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : \pm 0.20

Rated speed rpm : 1000
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 426
guide sleeve
travel mm : 3.48
Tolerance mm : \pm 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1460
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 149.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.25
Rated speed rpm : 1290
Tolerance 1/min : \pm 5

Check
 speed 1/min : + 10

 rack travel mm : 4.00
 Rated speed rpm : 1370
 Tolerance 1/min : + 15
 Check
 speed 1/min : + 20

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

 CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325
 rack travel mm : 4.40
 Tolerance mm : + 0.10

 rack travel mm : 2.00
 Rated speed rpm : 415
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 12.25
 Tolerance mm : + 0.05

Rated speed rpm : 1250
 rack travel mm : 12.25
 Tolerance mm : + 0.10

Rated speed rpm : 1000
 rack travel mm : 13.25
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
 Pressure hPa : 1500
 rack travel mm : 12.25
 Tolerance mm : + 0.05

Rated speed rpm : 600
 Pressure hPa : -
 rack travel mm : 7.00
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

 Pressure hPa : 430
 rack travel mm : 10.90
 Tolerance mm : + 0.05

Pressure hPa : 220
 rack travel mm : 8.10
 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 92.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 325

 Rack travel in mm : 4.40
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 882

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1250PA1385
Governor no. : 0 421 814 209

Cust. part No. : 1351707/1

Customer-spec. information
Customer : DAF
Motor : NS177M-CBP
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.80
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2
 : - 4

Phasing : 0- 60- 120- 180
 : - 240- 300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.70

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.70

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1303
guide sleeve
travel mm : 10.33
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.25
Tolerance mm : \pm 0.20

Rated speed rpm : 865
guide sleeve
travel mm : 5.43
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 3.02
Tolerance mm : \pm 0.25

Rated speed rpm : 1510
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1360

Rack travel in mm : 11.80
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 154.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 123.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1290
Tolerance 1/min : \pm 5
Check
speed 1/min : \pm 10

rack travel mm : 4.00
Rated speed rpm : 1375
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 210
rack travel mm : 8.60
Tolerance mm : \pm 0.10

Pressure hPa : 410
rack travel mm : 11.40
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 884

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1396
Governor no. : 0 421 801 838

Cust. part No. : 1351855/0

Customer-spec. information
Customer : DAF
Motor : NS177M (CBP)
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1292
guide sleeve
travel mm : 6.36
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : \pm 0.20

Rated speed rpm : 1250
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 426
guide sleeve
travel mm : 3.48
Tolerance mm : \pm 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1460
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 154.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1290

rack travel mm : 4.00
Rated speed rpm : 1375
Tolerance 1/min : \pm 15

Check
speed 1/min : + 20
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > 5.77

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 414
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : + 0.05

Rated speed rpm : 1250
rack travel mm : 12.80
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.30
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 310
rack travel mm : 11.40
Tolerance mm : + 0.05

Pressure hPa : 110
rack travel mm : 8.60
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.09.98
Test oil : ISO 4113
Combination No. : 0 402 746 995
Injection pump
Pump designation : PES6P120A32ORS7343
EP type number : 0 412 726 915
Governor
Governor design. : RQV300...1000PA1160K
Governor no. : 0 421 815 420

Cust. part No. : CCEP 5144A 66-232

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 062356 A/41
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.40
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1103
guide sleeve
travel mm : 8.70
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.32

Tolerance mm : \pm 0.25

Rated speed rpm : 823
guide sleeve
travel mm : 5.92
Tolerance mm : \pm 0.25

Rated speed rpm : 405
guide sleeve
travel mm : 2.43
Tolerance mm : \pm 0.25

Rated speed rpm : 455
guide sleeve
travel mm : 2.98
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.66
Tolerance mm : \pm 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1300

Rack travel in mm : 11.60
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 350.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

rack travel mm : -8.80
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.30
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm max. : $<$ -6.60

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : -3.90
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320
rack travel mm : -2.80
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -1.70
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 381.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 0.10
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 245.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm3/1000 strokes : 185.0
Tolerance
cm3/1000 strokes : \pm 15.0
Check tolerance
cm3/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.60
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 38.0
Tolerance
cm3/1000 strokes : \pm 1.5
Check tolerance
cm3/1000S. : \pm 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.03.93
Test oil : ISO 4113
Combination No. : 0 403 466 143
Injection pump
Pump designation : PES6MW100/120RS1137
: -2
EP type number : 0 413 406 180
Governor
Governor design. : RSV550...1100MW2A335
: -6
Governor no. : 0 420 085 222
Cust. part No. : 3921171

Customer-spec. information
Customer : CDC
Motor : 6 CTA-8.3
Power KW : 176.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 10.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 13.35
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 141.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rack travel in mm : 6.70
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : \pm 0.35

governor spring
pre-tension
click setting x : 4.00

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.30
Rated speed rpm : 1170
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 7.20
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 6.70
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 14.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 14.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.15

Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 675
rack travel mm : 13.00
Tolerance mm : \pm 0.20

Pressure hPa : 450
rack travel mm : 11.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

rack travel mm : 14.05
Tolerance mm : \pm 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rack travel in mm : 6.70
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.09.98
Test oil : ISO 4113

Combination No. : 0 403 546 022

Injection pump
Pump designation : PE6MW100/720RS1229
EP type number : 0 413 506 108

Governor
Governor design. : RQ250/1200MW94-2
Governor no. : 0 420 082 047

Cust. part No. :

Customer-spec. information
Customer : SNF
Motor : WD 612.95
Power KW : 191.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 250
Rack travel in mm : 9.20
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 20.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1249
guide sleeve
travel mm : 6.34
Tolerance mm : \pm 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.18
Tolerance mm : \pm 0.10

Rated speed rpm : 1200
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 423
guide sleeve
travel mm : 5.04
Tolerance mm : \pm 0.10

Rated speed rpm : 500
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1410
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 800

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 152.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.50
Rated speed rpm : 1245
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1340
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

rack travel mm : 4.00

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : > 10.00

Testing:

Rated speed rpm : 250
rack travel mm : 9.20
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.25
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 13.45
Tolerance mm : \pm 0.15

Pressure hPa : 600
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 80
Rated speed rpm : < 180

Check
speed 1/min : > 100

Check
speed 1/min : < 200

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 99.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 9.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 15.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 884

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1396
Governor no. : 0 421 801 838

Cust. part No. : 1351855/1

Customer-spec. information
Customer : DAF
Motor : NS177M (CBP)
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 154.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1292
guide sleeve
travel mm : 6.36
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : \pm 0.20

Rated speed rpm : 1250
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 426
guide sleeve
travel mm : 3.48
Tolerance mm : \pm 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1460
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 99
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 154.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1290

rack travel mm : 4.00
Rated speed rpm : 1375
Tolerance 1/min : \pm 15

Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 5.77

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 414
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.80
Tolerance mm : + 0.05

Rated speed rpm : 1250
rack travel mm : 12.80
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.30
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 410
rack travel mm : 11.40
Tolerance mm : + 0.05

Pressure hPa : 210
rack travel mm : 8.60
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.08.98

Test oil : ISO 4113

Combination No. : 0 402 076 821

Injection pump

Pump designation : PES6P120A720RS3340

EP type number : 0 412 026 773

Governor

Governer design. : RSV650...1050P8A566

: -6

Governer no. : 0 421 833 615

Cust. part No. :

Customer-spec. information

Customer : NH

Motor : EP 040 B

Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 110

Tolerance l/h : ± 20.0

Test nozzle holder assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 13.35
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 204.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025
Aneroid pressure
hPa : 1700

Del. quantity
cm³/1000 strokes : 204.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067
rack travel mm : 12.20

Rated speed rpm : 1097
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1068
rack travel mm : 12.20

Rated speed rpm : 1098
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1069
rack travel mm : 12.20

Rated speed rpm : 1099

Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1070
rack travel mm : 12.20

Rated speed rpm : 1100
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1071
rack travel mm : 12.20

Rated speed rpm : 1101
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1072
rack travel mm : 12.20

Rated speed rpm : 1102
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.20
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00

M03

Rated speed rpm : 720

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 13.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 14.05
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1700
rack travel mm : 14.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 980
rack travel mm : 12.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 14.05
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.09.98
Test oil : ISO 4113
Combination No. : 0 402 076 826
Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773
Governor
Governor design. : RSV650...1050P8A566
: -7
Governor no. : 0 421 833 626
Cust. part No. : 87801590

Customer-spec. information
Customer : NH
Motor : EP 040 B
Power KW : 202.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

M05

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 185.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

Rack travel in mm : 0.25
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

M06

Rated speed rpm : 1025

Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 185.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 95.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067
rack travel mm : 11.50

Rated speed rpm : 1097
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1068
rack travel mm : 11.50

Rated speed rpm : 1098
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1069
rack travel mm : 11.50

Rated speed rpm : 1099
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1070
rack travel mm : 11.50

Rated speed rpm : 1100
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1071
rack travel mm : 11.50

Rated speed rpm : 1101
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1072
rack travel mm : 11.50

Rated speed rpm : 1102
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 76.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 750

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.25
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 13.30
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 13.40
Tolerance mm : \pm 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.70
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 980
rack travel mm : 11.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 13.30
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 650

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.09.98
Test oil : ISO 4113

Combination No. : 0 402 670 815

Injection pump
Pump designation : PE12P120A320LS7923
EP type number : 0 412 620 851

Governor
Governor design. : RSV375...950POA701
Governor no. : 0 421 833 627

Cust. part No. : 0 280 742 002

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power Kw : 605.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7

Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 930

Rack travel in mm : 13.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 256.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 375

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.85
Tolerance mm : \pm 0.55

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 930

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 256.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.40

Rated speed rpm : 980
Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1055
Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 13.00

Testing:

Rated speed rpm : 375
rack travel mm : 5.20

Tolerance mm : \pm 0.10

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 930
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 12.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : \pm 0.10

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1050
rack travel mm : 12.80

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 450
rack travel mm : 8.50
Tolerance mm : \pm 0.10

Pressure hPa : 800
rack travel mm : 11.40
Tolerance mm : \pm 0.05

Pressure hPa : 1200
rack travel mm : 13.10
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1050
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 273.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 146.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 275.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.09.98
Test oil : ISO 4113

Combination No. : 0 402 670 816

Injection pump
Pump designation : PE12P120A320LS7925
EP type number : 0 412 620 852

Governor
Governor design. : RSV375...950POA702
Governor no. : 0 421 833 628

Cust. part No. : 0 280 741 902

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 493.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 12- 1- 5- 9- 8
 : - 3- 4- 11- 10
 : - 2- 6- 7

Phasing : 0-45-60-105-120
 : -165-180-225-240
 : -285-300-345

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 930

Rack travel in mm : 12.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 215.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 375

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 930
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 215.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 72.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.50
Rated speed rpm : 980
Tolerance 1/min : \pm 4

rack travel mm : 4.00
Rated speed rpm : 1050
Tolerance 1/min : \pm 4

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 90.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 375
rack travel mm : 4.40
Tolerance mm : \pm 0.10

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 930
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 11.90
Tolerance mm : \pm 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 8.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 350
rack travel mm : 9.20
Tolerance mm : \pm 0.10

Pressure hPa : 500
rack travel mm : 10.70
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 231.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 700
Rated speed rpm : 600
rack travel mm : 11.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 228.0
Tolerance
cm³/1000 strokes : \pm 1.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.00
Tolerance mm : \pm 0.15
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 375

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.09.98
Test oil : ISO 4113

Combination No. : 0 400 876 433

Injection pump
Pump designation : PES6A95D320RS2832
EP type number : 0 410 896 897

Governor
Governor design. : RSV500...1100A5C883R
Governor no. : 0 420 233 349

Cust. part No. :

Customer-spec. information
Customer : SISU
Motor : 620WDE
Power KW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack
travel : 10.50
Tolerance mm : ± 1.50
Difference ° CS : 5.00

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55
Tolerance mm : ± 0.10

Del. quantity
cm3/1000 strokes : 109.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spreed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 500

Rack travel in mm : 3.80
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 16.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spreed

Tolerance
cm3/1000 strokes : 5.5

Check tolerance
cm3/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 109.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 3.0
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1320

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 500
rack travel mm : 3.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.55
Tolerance mm : \pm 0.10

Rated speed rpm : 1070
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Rated speed rpm : 1070
rack travel mm : 11.30
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 11.75
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.55
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.85
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 575
rack travel mm : 11.30
Tolerance mm : \pm 0.15

Pressure hPa : 700
rack travel mm : 12.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.5

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

ESS test: With 12 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 3.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.09.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 048

Injection pump
Pump designation : PES6A95D320/3RS2916
EP type number : F 002 A10 010

Governor
Governor design. : RSV425...950A0C927R
Governor no. : F 002 A20 235

Cust. part No. : 3283916

Customer-spec. information
Customer : CUMMINS
Motor : 6BTA-160/1900
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

M20

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.30

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 119.4

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 6.00

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure
hPa : 850

Del. quantity
cm³/1000 strokes : 119.4

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 90.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1005

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1075

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1250

rack travel mm : 4.00

Rated speed rpm : 1100

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 17.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 425

rack travel mm : 5.00

Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 575
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.30
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 850

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.30
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 11.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 80.8
Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm3/1000 strokes : 122.5
Tolerance
cm3/1000 strokes : \pm 10.0
Check tolerance
cm3/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 23.5
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.09.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 050

Injection pump
Pump designation : PES6A95D320/3RS2916
EP type number : F 002 A10 010

Governor
Governor design. : RSV425...1050A0C930R
Governor no. : F 002 A20 236

Cust. part No. : 328 3917

Customer-spec. information
Customer : CUMMINS
Motor : 6BT
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.25

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm3/1000 strokes	: 98.2
<hr/>	
Tolerance cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance cm3/1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 6.0
<hr/>	

Rated speed rpm	: 425
<hr/>	
Rack travel in mm	: 5.05
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 18.5
Tolerance cm3/1000 strokes	: + 2.0
Check tolerance cm3/1000S.	: + 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 900
Del. quantity cm3/1000 strokes	: 98.2
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000S.	: + 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 108.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 10.25
Rated speed rpm	: 1095
Tolerance 1/min	: + 5

rack travel mm	: 4.50
Rated speed rpm	: 1170
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1350

rack travel mm	: 4.50
Rated speed rpm	: 1175
Tolerance 1/min	: + 15

LOW IDLE

control lever position degree	: 91.0
tolerance degree	: + 4.0

Control lever difference	
Grad	: 17.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 4.05
Tolerance mm	: + 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425
rack travel mm : 5.05
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 650
rack travel mm : 11.25
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 10.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 106.2
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 425
Rack travel in mm : 5.05
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.08.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 097

Injection pump
Pump designation : PES6A100D320/3RS3517
EP type number : F 002 A10 036

Governor
Governor design. : RSV550...750A7C983R
Governor no. : F 002 A20 027

Cust. part No. : 3814097

Customer-spec. information
Customer : TATA
Motor : 6BT
Power KW : 86.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 730

Rack travel in mm : 12.20
Tolerance mm : \pm 0.05

Rack travel in mm : 6.05
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 750
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 785
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

rack travel mm : 4.00
Rated speed rpm : 795
Tolerance 1/min : \pm 10

LOW IDLE

M27

control lever
position degree : 81.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 13.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 5.05
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 550
rack travel mm : 6.05
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 600
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 730
rack travel mm : 12.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.20
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

rack travel mm : 11.20
Tolerance mm : \pm 0.20

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.70
Tolerance mm : \pm 0.50

LOW IDLE

Rack travel in mm : 6.05
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.09.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 115

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1050A0C990R
Governor no. : F 002 A20 261

Cust. part No. : 3284491

Customer-spec. information
Customer : CUMMINS
Motor : CUMMINS-4BTA-3.9
Power KW : 79.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 8.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 6.00
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 22.0

Tolerance
cm3/1000 strokes : +- 2.0

Check tolerance
cm3/1000S. : +- 4.5

Speed

Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 950
Del. quantity
cm3/1000 strokes : 119.0

NO2

Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance
cm3/1000S. : +- 3.0

Speed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 100.5
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1115

Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1210

Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55

Rated speed rpm : 1260

rack travel mm : 4.00
Rated speed rpm : 1210

Tolerance 1/min : +- 15

LOW IDLE

control lever
position degree : 80.0
tolerance degree : +- 4.0

Control lever difference
Grad : 20.5
tolerance degree : +- 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 6.00
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 585
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 950

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 750
rack travel mm : 13.55
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 12.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 950
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 134.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

N03

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.4
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.4
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.09.98

Test oil : ISO 4113

Combination No. : F 002 A0Z ...

Injection pump

Pump designation : PES4A95D320/3RS2880

EP type number :

Governor

Governer design. : RSV475...1100A0C920R

Governer no. :

Cust. part No. : 3930147

Customer-spec. information

Customer : CDC

Motor : 4BT590

Power KW : 60.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

NO4

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 2.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.75

Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 87.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spread

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.30

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 16.5

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm3/1000 strokes : 87.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 3.0

Spread

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

RATED SPEED

rack travel mm : 9.70

Rated speed rpm : 1180

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1375

rack travel mm : 4.00

Rated speed rpm : 1260

Tolerance 1/min : \pm 15

LOW IDLE

Control lever difference

Grad : 30.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 475

rack travel mm : 4.80

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 475

rack travel mm : 5.30

Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100

rack travel mm : 10.75

Tolerance mm : \pm 0.05

Rated speed rpm : 750

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.09.98
Test oil : ISO 4113

Combination No. : 0 401 846 891

Injection pump
Pump designation : PE6P120A720RS3216
EP type number : 0 411 826 781

Governor
Governor design. : RGV300...975PA898K
Governor no. : 0 421 815 197

Cust. part No. :

Customer-spec. information
Customer : IVECO-UNIC
Motor : 8210.42.269
Power KW : 261.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 236.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 20.0

Tolerance
cm3/1000 strokes : \pm 3.0

Check tolerance
cm3/1000S. : \pm 6.0

Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 975
guide sleeve
travel mm : 9.70
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.80
Tolerance mm : \pm 0.20

Rated speed rpm : 400
guide sleeve
travel mm : 3.60
Tolerance mm : \pm 0.40

Rated speed rpm : 750
guide sleeve
travel mm : 6.90
Tolerance mm : \pm 0.20

Rated speed rpm : 1200
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

N08

control lever
position degree : - 1
Rated speed rpm : 1015

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975
Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 236.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1020
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 300
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 340

TORQUE CONTROL

Rated speed rpm : 975
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 830
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.40
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : 11.35
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 975
Pressure hPa : 1200
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 975
Pressure hPa : -
rack travel mm : 9.70
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 975

Pressure hPa : 400
rack travel mm : 10.20
Tolerance mm : \pm 0.10

Pressure hPa : 600
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Start interlock

NO9

Rated speed rpm : > 100
Rated speed rpm : < 240

Check
speed 1/min : > 80
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 191.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 11.40
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.09.98

Test oil : ISO 4113

Combination No. : 0 402 036 745

Injection pump

Pump designation : PES6P110A720/3LS3131

: -3

EP type number : 0 412 016 734

Governor

Governer design. : RQ300/1100PA722-1

Governer no. : 0 421 801 461

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ

Motor : OM447

Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 110

Tolerance l/h : ± 10.0

Test nozzle holder assembly

: 0 681 343 009

Opening pressure

bar : 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.35

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 7.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159
guide sleeve
travel mm : 7.65
Tolerance mm : ± 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.65
Tolerance mm : ± 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 7.00
Tolerance mm : ± 0.10

Rated speed rpm : 396

guide sleeve
travel mm : 5.74
Tolerance mm : ± 0.10

Rated speed rpm : 470
guide sleeve
travel mm : 7.00
Tolerance mm : ± 0.10

Rated speed rpm : 1260
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1162

Rack travel in mm : 9.90
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1153
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : $>$ 8.80

Testing:

Rated speed rpm : 300
rack travel mm : 7.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 388
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.50
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 23.09.98
Test oil : ISO 4113

Combination No. : 0 402 036 745H

Injection pump
Pump designation : PES6P110A720/3LS3131
: -3
EP type number : 0 412 016 734

Governor
Governor design. : RQ300/1100PA722-1
Governor no. : 0 421 801 461

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM447
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 117.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 7.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1157
guide sleeve
travel mm : 7.44
Tolerance mm : ± 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.59
Tolerance mm : ± 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 7.00
Tolerance mm : ± 0.10

Rated speed rpm : 396

guide sleeve
travel mm : 5.70
Tolerance mm : ± 0.10

Rated speed rpm : 470
guide sleeve
travel mm : 7.00
Tolerance mm : ± 0.10

Rated speed rpm : 1260
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1162

Rack travel in mm : 9.90
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 117.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.50
Rated speed rpm : 1153
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : \pm 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
CRT mm min. : $>$ 8.80

Testing:

Rated speed rpm : 300
rack travel mm : 7.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 388
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.50
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.09.98
Test oil : ISO 4113

Combination No. : 0 402 046 885

Injection pump
Pump designation : PES6P110A320RS3406
EP type number : 0 412 016 760

Governor
Governor design. : RQV300...1100PA1398
Governor no. : 0 421 814 213

Cust. part No. : 11032819 P01 10.9.97

Customer-spec. information
Customer : VCE
Motor : TD63 KGE
Power KW : 93.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 1.5

Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 0 462 191 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 122.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 5.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1162
guide sleeve
travel mm : 8.57
Tolerance mm : \pm 0.15

Rated speed rpm : 315
guide sleeve
travel mm : 1.61
Tolerance mm : \pm 0.20

Rated speed rpm : 818
guide sleeve
travel mm : 5.37
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.11

Tolerance mm : \pm 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1237

Rack travel in mm : 10.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 122.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1140
Tolerance 1/min : \pm 5

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1330

LOW IDLE

Testing:

Rated speed rpm : 350
rack travel mm : 5.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 805
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 780
rack travel mm : 12.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : 1.90
Tolerance mm : \pm 0.20

Pressure hPa : 100
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed

Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

rack travel mm : 12.30
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : 0 402 648 932

Injection pump
Pump designation : PE8P120A320LS7849
EP type number : 0 412 628 864

Governor
Governor design. : RQV300...1050PA1034
Governor no. : 0 421 813 993

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D 9308 TI
Power Kw : 360.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 780
guide sleeve
travel mm : 6.60
Tolerance mm : ± 0.30

Rated speed rpm : 350
guide sleeve
travel mm : 1.90
Tolerance mm : ± 0.20

Rated speed rpm : 405
guide sleeve
travel mm : 2.65
Tolerance mm : ± 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 4.40
Tolerance mm : ± 0.20

Rated speed rpm : 1118
guide sleeve
travel mm : 10.50
Tolerance mm : ± 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 14.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 14.00
Rated speed rpm : 1105
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : ± 15

rack travel mm : 0.70
Tolerance mm : ± 0.70
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 15.05
Tolerance mm : \pm 0.05

Rated speed rpm : 700
Pressure hPa : -
rack travel mm : 11.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 870
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Pressure hPa : 1130
rack travel mm : 14.15
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.5

N22

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 22.09.98

Test oil : ISO 4113

Combination No. : 0 402 648 932A

Injection pump

Pump designation : PE8P120A320LS7849

EP type number : 0 412 628 864

Governor

Governor design. : RQV300...1050PA1034

Governor no. : 0 421 813 993

Cust. part No. :

Customer-spec. information

Customer : LIEBHERR

Motor : D 9308 TI

Power KW : 360.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6

: - 3- 5- 4

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.05

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 263.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 780
guide sleeve
travel mm : 6.60
Tolerance mm : \pm 0.30

Rated speed rpm : 350
guide sleeve
travel mm : 1.90
Tolerance mm : \pm 0.20

Rated speed rpm : 405
guide sleeve
travel mm : 2.65
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 4.40
Tolerance mm : \pm 0.20

Rated speed rpm : 1118
guide sleeve
travel mm : 10.50
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 14.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 263.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 14.00
Rated speed rpm : 1105
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

rack travel mm : 0.70
Tolerance mm : \pm 0.70
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 460
Tolerance 1/min : \pm 30

Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 15.05
Tolerance mm : \pm 0.05

Rated speed rpm : 700
Pressure hPa : -
rack travel mm : 11.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 870
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Pressure hPa : 1130
rack travel mm : 14.15
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.5

N25

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

End of test specification sheet